

DURBAN UNIVERSITY OF TECHNOLOGY

**IDENTIFICATION OF CLINICAL PERFORMANCE INDICATORS IN
THE EMERGENCY SETTING THE USE OF E-GOVERNANCE SERVICE
DELIVERY IN THE ETHEKWINI MUNICIPALITY, KWAZULU-NATAL**

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06 MARCH 2025

DECLARATION

This is to certify that this work is entirely my own and not that of any other person, unless explicitly acknowledged (including citations of published and unpublished sources). The work has not previously been submitted in any form to the Durban University of Technology or to any other institution for assessment or for any other purpose.

12-01-2026

Signature of student

Date

Approved for final submission

12/01/2026

Signature of Supervisor

Date

DEDICATION

I am proud that I eventually accomplished the goal in achieving this study. A special dedication of the study goes to my late dad who always encouraged and motivated me and was always proud of my achievements. A special gratitude to my mum for supporting me and motivating me to keep going until the I reach the end of the journey. A special thank you to my son who has been my ultimate motivation even without knowing.

ACKNOWLEDGEMENT

I wish to thank my Supervisor Professor Zamokuhle Mbandlwa and My HOD, Dr. Pillay, for granting me some time off and having patience with me to accomplish this study. A word of gratitude to the DUT Scholarship Scheme who assisted with me funding. A special thank you to my mum for her continued motivation and support and thank you to eThekweni Municipality to granting permission to use eThekweni Municipality as a study site.

ABSTRACT

Background: E-governance, which is the use of information and communication technology in public or private service delivery, has been adopted by many nations throughout the globe, including South Africa. It is a convenient, efficient and transparent way that can ensure that government institutions become more accountable and responsible. The desire for a more personalised interaction between government and citizens has, according to various studies, increased over the past few years. This has prompted a growing need for citizen- and business-focused digital government.

Aim of the Study: This study therefore sought to investigate the role being played by e-governance on service delivery in the eThekweni municipality of Kwa-Zulu Natal. At the same time the study discusses the challenges faced by the eThekweni municipality in providing effective service delivery through e-governance and provide possible recommendations that could be implemented to ensure effective service delivery in the eThekweni municipality through e-governance.

Methodology: The convergent mixed method research approach was used in this study. Survey questionnaires and semi-structured interviews were used to collect primary data from eThekweni citizens, businesspeople, as well municipal workers. These participants were selected using convenience and purposive sampling. The latest version of the Statistical Package for the Social Sciences (SPSS) was used to analyse the quantitative data collected and thematic analysis for analysing the qualitative data.

Results: The findings reveal that both staff and citizens are relatively open to e-government services; however, there are numerous hurdles such as internet connectivity, the user interfaces, and digital literacy that need to be overcome to improve the 'buy-in' and usage by both staff and citizens.

Conclusion: The study highlighted both the achievements and challenges associated with e-governance in the eThekweni Municipality. The municipality's adoption of ICT in service delivery has yielded improvements in efficiency and accessibility for digitally

connected residents, demonstrating the potential of e-governance to enhance public services. However, barriers, such as digital infrastructure gaps, organisational resistance, and socio-economic disparities, limit the full realisation of these benefits.

Key Words: E-government, eThekweni Metropolitan Municipality, Public Service Delivery, Digital Divide.

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ACRONYMS

ASD - Alternative Service Delivery

BO - Bookkeeping Official

DPSA - Department of Public Service and Administration

IDP - Integrated Development Plan

ICT - Information and Communication Technology

IoT - Internet of Things

NDP - National Development Plan

OECD - Organisation for Economic Co-operation and Development

PVT - Public Value Theory

SDI - Service Delivery Innovation

SPSS - Statistical Package for the Social Sciences

TAM - Technology Acceptance Model

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

This study examines the efficiency and effectiveness of e-governance in improving service delivery in the eThekweni Metropolitan Municipality. This introductory chapter provides a research background, which contextualises the research problem that this research study is addressing. Furthermore, this chapter presents the study's research aim, objectives, questions, and significance. The chapter also delves into the study area and outlines the overall structure of the dissertation.

1.2 BACKGROUND TO THE STUDY

The transformation of public service delivery has become a significant focus for governments worldwide, especially given the rapid development and use of information and communication technologies (ICT). Over the last two decades, digitisation has brought significant changes to individuals, businesses, and governments alike, significantly transforming the living and working conditions of citizens throughout the globe (Volodina, Murzina and Retinskaya 2020; Leimeister and Blohm 2022; Mikhalchenko 2022). This widespread digitalisation of society eventually led to the development of the concept and practice called e-governance, which refers to the use of ICT to support and stimulate good governance, thereby leading to improved service delivery and fostering more inclusive and participatory decision-making processes (Hanafizadeh, Khosravi, and Tabatabaeian 2020; Mudrifah 2020). Moreover, scholars such as Androutsopoulou *et al.* (2019:360) assert that the use of e-governance can give institutions and organisations a competitive advantage over their competitors because of its efficiency and potential in strengthening democratic engagement between the state and its stakeholders.

1.2.1 Global Trends and International Perspectives

The concept and approach called e-governance has been adopted worldwide, motivated by the necessity to modernise public administration, enhance effectiveness, and meet the growing demands of citizens for more accessible and responsive government services (Ngonzi and Sewchurran 2019; Mueller 2017). Digital governance initiatives are frequently defended by their potential to decrease

bureaucratic inefficiencies, reduce corruption, accelerate service turnaround times, and bolster citizen trust in public institutions (Androutsopoulou *et al.* 2019; OECD 2020). Countries like Estonia and South Korea, who are considered as developed, have shown the significant impact of e-governance by implementing comprehensive digital strategies that combine different government functions into user-friendly online platforms (Olsen 2021; Fayed 2024). According to the Organisation for Economic Co-operation and Development (OECD) (2020), these countries have experienced notable improvements in administrative efficiency, cost reduction, and citizen satisfaction. These international examples illustrate the capacity of e-governance to enhance public administration, contingent upon robust institutional frameworks and digital preparedness. In developing and underdeveloped countries, e-governance projects are frequently implemented to address the digital gap, enhance transparency, and combat corruption. The adoption of e-governance in Africa in particular, has been inconsistent due to ongoing challenges, including inadequate ICT infrastructure, digital inequality, and differing levels of digital literacy among citizens and public officials (Twizeyimana and Andersson 2019; Pangaribuan 2019).

South Africa in particular, has made significant progress in using e-governance to improve the delivery of governmental services within the broader transformation agenda 1994. Post-apartheid, local government underwent restructuring to operate as a governmental sphere with a developmental mandate focused on fostering social economic development, enhancing democratic participation, and ensuring equitable service delivery (Republic of South Africa 1996). The South African government has enacted various laws and frameworks to facilitate the shift towards e-governance, including the National Integrated ICT Policy White Paper and the Electronic Communications and Transactions Act (DPSA 2017). Concurrently, policy instruments like the Integrated Development Plan (IDP) aim to synchronise municipal planning with community requirements and national development objectives (Mangai 2017, Mamokhere 2023).

1.2.2 The eThekweni Municipality and Service Delivery Challenges

The eThekweni metropolitan municipality, which is the third largest metropolitan municipality in South Africa, following the Johannesburg and Tshwane Metropolitan

Municipalities, has been at the forefront of adopting e-governance initiatives to improve service delivery. The priority service delivery areas for e-governance include billing and revenue management, water and sanitation services, solid waste management, housing and human settlement applications, and municipal customer service platforms. However, the municipality faces several challenges that hinder the full realisation of the benefits of e-governance. These challenges include inadequate ICT infrastructure, limited digital literacy among citizens, and persistent socio-economic disparities that affect access to digital services (eThekweni Municipality 2021). Inefficiencies and delays have historically plagued service delivery in the eThekweni metropolitan municipality, particularly in critical areas such as water and sanitation, housing, and waste management. The traditional, paper-based bureaucratic processes have often led to slow response times and a lack of accountability. Malomane (2021) views the implementation of e-governance as a strategic move to address these issues by streamlining processes, reducing corruption, and enhancing the overall efficiency of municipal services.

This study therefore aimed to critically assess the effectiveness and efficiency of e-governance in enhancing public service delivery in the eThekweni Metropolitan Municipality. This study situates itself within the transformations of global and national governance while recognizing South Africa's distinct historical and institutional content. It contributes to a deepening understanding of the role of digital governance in supporting development of local government in metropolitan areas.

1.3 RESEARCH PROBLEM

Governments all over the globe are accelerating the use of ICT in their operations due to the rapid expansion in internet usage and digitalisation in the global economy (Nengomasha and Shumbili 2022:70). This is mostly required to guarantee more efficient and open government operations. The advantages of e-governance include speed, efficiency, cost savings, openness, and accountability (Jacob *et al.* 2019: 800). However, ICT has its own drawbacks, including a loss of interpersonal communication, technical issues, a lack of technological expertise, and in certain circumstances, cybercrime (Junnonyang 2021:172). Most African countries have not fully adopted e-governance services due to poverty levels, poor education, and limited citizen access to ICT systems (Twizeyimana and Anderson 2019:170). Specifically, South Africa has implemented numerous e-governance initiatives to improve public service delivery;

however, evaluative research studies investigating the effectiveness and efficiency of these initiatives in local government settings like the eThekwini municipality are scarce. Therefore, this study sought to investigate how the eThekwini municipality has adopted e-governance in an attempt to improve service delivery. It examines how municipalities have used ICT to run their operations, as well as how the public has reacted and adapted to this new model of service delivery. This study also hopes to initiate dialogue and elicit constructive debates on whether e-governance has had a beneficial or negative influence on the eThekwini municipality's service delivery system.

1.4 AIM OF THE STUDY

To examine the effectiveness and efficiency of e-governance in improving service delivery in the eThekwini Municipality, KZN.

1.5 RESEARCH OBJECTIVES

- To ascertain the level at which the eThekwini municipality has embraced ICT for e-governance in service delivery.
- To evaluate the extent to which e-governance initiatives have enhanced the efficiency and effectiveness of public service delivery in the eThekwini Municipality.
- To investigate the challenges and barriers in the implementation and utilisation of e-governance systems and processes in the eThekwini Municipality.

1.6 RESEARCH QUESTIONS

- To what extent has the eThekwini Municipality embraced ICT for e-governance in service delivery?
- To what extent have e-governance initiatives enhanced the efficiency and effectiveness of public service delivery in the eThekwini Municipality?
- What challenges and barriers in the implementation and utilisation of e-governance systems and processes has the eThekwini Municipality faced?
- What recommendations can be made to ensure the adoption of e-governance in municipalities is as seamless and effective as possible?

1.7 SIGNIFICANCE OF THE STUDY

The study's findings have the potential to drastically change how public services are delivered in the eThekweni Municipality, making them more responsive to citizens' demands. Furthermore, it fills a vital research vacuum by contributing to the academic and practical understanding of e-governance in the South African context. The findings can assist policymakers, administrators, and developers to create more effective, efficient, and inclusive e-governance systems, hence improving the quality of life for the municipality's citizens.

1.8 STUDY SETTING

This study was conducted in the eThekweni Municipality. Figure 1.1 illustrates the location of the study site.

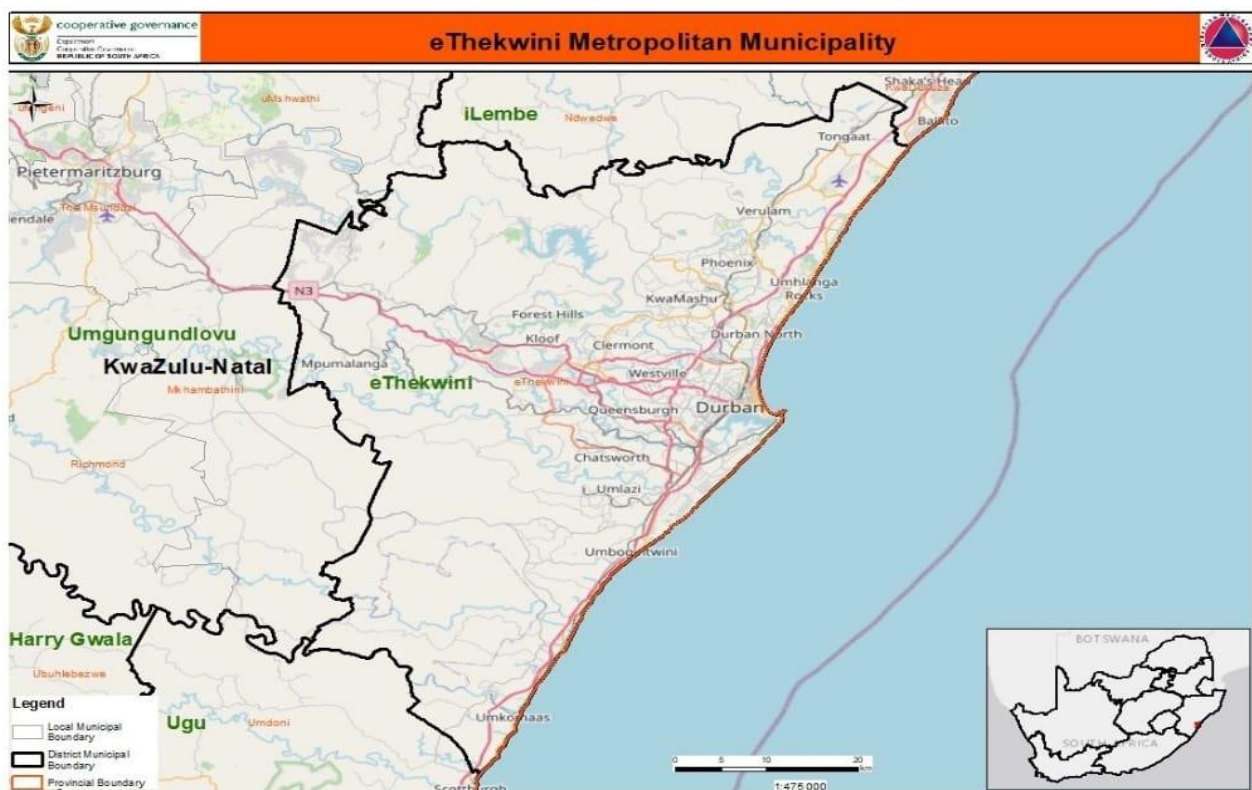


Figure 1.1 Map of eThekweni Metropolitan Municipality

The eThekweni Metropolitan area is located on the east coast of South Africa in the province of KwaZulu- Natal (KZN) and is the third largest metropolitan municipality in the country after Johannesburg and Cape Town. It spans an area of approximately 2 555 km² and shares boundaries with three districts: UGu to the south, iLembe to the

North, and uMgungundlovu to the west. It is accessible via the N2 and N3 highways and the King Shaka International Airport.

According to the 2023/24 integrated development plan (eThekweni Municipality 2023), the metro has 4.4 million inhabitants; accounting for 34.7% of the population in KwaZulu Natal. The metro has an average household size of 3.3, which is lower than the provincial average of 3.8. Close to 30% of the population is under the age of 15 between 19, while 42.14% of households are headed by women.

About 2.1 million of eThekweni's residents live below the poverty line of R1227 per person per month, while 17.1% of the population reported having no income in the 2016 Stats SA Community Survey. Additionally, 16.8% of the population had not received an education while 5.8% were in possession of a higher education qualification as of 12 June 2020.

EThekweni is the economic powerhouse of KZN with a provincial GDP contribution of 59.88% or R468 billion. The metro is characterised by a diversified economy, with strengths ranging from manufacturing, logistics, property, and finance to tourism, leisure, sports as well as arts and Culture.

The metro has identified 22 key catalytic projects with a total investment value of R276 billion that can contribute to the city's strategic objectives including the Automotive Supply Park, Avoca Nodal Development, Cornubia, Dube Trade Port, Point Waterfront, Inyaninga, Bridge City Development, Rivertown Precinct, Oceans Mhlanga, Ntshongweni Development and Sibaya Coastal Precinct.

1.9 ORGANISATION OF THE STUDY

The thesis is made up of six chapters. The content of each chapter is outlined as follows:

Chapter 1: Introduction

The first chapter sets the stage for the dissertation by introducing the topic of e-governance in the context of the eThekweni Municipality. It outlines the research problem, objectives, and significance of the study. This chapter also presents the research questions that guide the study, the study setting, and provides a brief overview of the dissertation structure.

Chapter 2: Literature Review

This chapter reviews existing literature on e-governance, focusing on its implementation in public service delivery globally and within South Africa. It explores theoretical frameworks pertinent to e-governance, discusses previous studies on the subject, and identifies gaps in the current knowledge. The literature review helps to position the current study within the broader scholarly context and justifies the research approach.

Chapter 3: Research Methodology

The third chapter details the research design and methodology used to collect and analyse data. It describes data collection methods (surveys and interviews), and the analytical techniques employed. This chapter also discusses the reliability and validity of the methods and addresses any ethical considerations associated with the research.

Chapter 4: Results

This chapter presents the findings of the research. It systematically reports the data collected, providing detailed analysis and interpretation of the results. This includes quantitative data presented in tables and graphs and presents the qualitative insights thematically that were gained from interviews and observations.

Chapter 5: Discussion

The fifth chapter discusses the implications of the findings in relation to the literature reviewed in Chapter 2. It examines the outcomes of the study in the context of existing theories and research, discussing congruencies and discrepancies.

Chapter 6: Conclusion and Recommendations

The final chapter summarises the entire study, highlighting the key findings and their implications. It provides a concise synthesis of the insights gained from the research and offers practical recommendations for policymakers, practitioners, and other stakeholders involved in e-governance in eThekweni and similar settings. This

chapter also outlines the limitations of the study and suggests areas for further research.

1.10 CONCLUSION

Chapter 1 provided an overview of the context, stated the problem, outlined the goals and objectives of the study, and highlighted the significance of the study. The outlines for all six chapters have been provided. The following chapter will analyse academic literature to offer insights and viewpoints on e-governance in the global and local contexts, noting how they have been implemented, the challenges associated with e-governance, and suggested strategies for effective implementation for public service.

CHAPTER 2- LITERATURE REVIEW

2.1 INTRODUCTION

In their quest for development, many governments around the world have incorporated information and communication technologies (ICTs) to improve access to and delivery of government services (Hanafizadeh, Khosravi and Tabatabaeian 2020; Mikhailchenko 2022). Hence, this research study sought to examine the efficiency and effectiveness of e-governance in improving service delivery in the eThekweni Metropolitan. The chapter reviews the literature on e-governance. Elements explored include the conceptual underpinnings of e-governance as a service delivery mechanism, service delivery innovation in the public sector, and examining the role, challenges, and strategies employed in e-governance in public service.

2.2 CONCEPTUAL UNDERPINNINGS OF E-GOVERNANCE AS A SERVICE DELIVERY MECHANISM

This section examines the essential ideas, frameworks, and theoretical foundations that characterize e-governance as a service delivery system. This discussion offers a thorough analysis of digital governance by exploring its conceptual framework, implementation tactics, and obstacles, elucidating how it improves public service efficiency while tackling digital inclusiveness, accessibility, and cybersecurity concerns.

2.2.1 Service Delivery

The provision of public services is a critical function of a government, as it guarantees the welfare of citizens, justice in society and promotes economic stability (Pareek and Sole 2022). Timeliness, quality, and the resolution of grievances during the service delivery process distinguish public services, which in turn significantly influences citizens' satisfaction and trust in their government.

Municipalities in South Africa are required to provide essential services such as sanitation, housing, health and safety, water and electricity, recreational services, and any public works (Mabeba 2021; Mamokhere 2023). However, according to the Integrated Development Plan (IDP) development process, municipalities must consult with communities to determine the exact essential services that the locals require (Mangai 2017:16). Regrettably, factors — such as political interference, inadequate resources, a lack of strategic awareness, and poor ethics — significantly impede the

implementation of the resolutions of the IDP to ensure effective service delivery. Hence, improving service outcomes necessitates addressing these issues through improved governance practices (Thabang *et al.* 2023), which e-governance could facilitate.

2.2.2 Alternative Service Delivery

Alternative service delivery (ASD) refers to the various methods and strategies used by organisations to provide services in a manner that differs from traditional public sector practices (Vos and Voets 2021). Commercial enterprises, non-profit groups, or other governmental units may form partnerships to improve service delivery efficiency and effectiveness. The concept highlights the use of external capabilities to provide public services in a more innovative and cost-effective way. However, factors — such as fiscal stress, political interests, and the specific characteristics of the services provided — influence the choice of ASD mechanisms. For example, municipalities with higher fiscal stress are more likely to engage in intermunicipal cooperation, while privatisation is more common in areas with higher property values (Petkovšek *et al.* 2021). Furthermore, effective ASD requires strong governance and institutional frameworks. For example, poor physical infrastructure and insufficient administrative staff in Nepal hinder the effectiveness of service delivery practices in local governments, highlighting the need for better institutional support and cooperation between different levels of government (Kharel and Tharu 2019).

2.2.3 Digital Transformation

Digital transformation is the process of incorporating digital technology into all elements of an organisation, fundamentally transforming how it operates and provides value to its consumers (Jessup *et al.* 2019). This approach is effective in a culture that questions the status quo, fosters innovation, and welcomes new business models. Local governments are undergoing digital transformation by implementing innovative digital tools to improve interactions between government authorities and citizens, expedite operations, and foster open governance. This transition intends to modernise public administration and improve local digital interactions (Rusu *et al.* 2023). The digital transformation of public administration is predicted to radically alter local service delivery and governance. However, the adoption of digital transformation in public administration can have unanticipated negative consequences for public employees and citizens. Effective digital transformation necessitates thorough planning and

consideration of these consequences (Kuhlmann and Heuberger 2021). Furthermore, successful implementation necessitates tackling issues such as the digital divide, a lack of technical skills, and resource restrictions (Hofisi and Chigova 2023). Initiatives such as the European Commission's Digital and Intelligent Cities Challenge can help cities with the implementation of digital transformation strategies, transforming local governments into smart governments that value data transparency and community engagement (Ziozias and Anthopoulos 2022).

2.2.4 Digital Society

A digital society is one that is completely dependent on digital technologies, with individuals, corporations, and governments interacting via digital platforms (Huschebeck and Léonardi 2020). This integration improves communication, information access, and general societal efficacy, resulting in significant changes to everyday life and social structures. A digital society is regarded as the next stage of post-industrial development, characterised by reconfigured economic, political, cultural, and social institutions (Chernavin 2021). Algorithmic governance, deification, platformisation, and privacy are all principles that are important to digital society. These notions contribute to an interdisciplinary analysis of digital society, with a focus on its social, political, cultural, ethical, and economic implications (Katzenbach and Bächle 2019).

2.2.5 Digital Government

Digital government is defined as the application of digital technologies to transform government operations, improve public services, and boost citizen engagement (Scholl 2020). It entails the use of digital tools to expedite operations, promote transparency, and make government services more accessible and effective. While e-government focuses on delivering government services online, digital government has a larger scope that includes the transformation of government operations and the incorporation of digital technologies into all aspects of public administration. This comprises enhanced data analytics, artificial intelligence, and customized services (Chen 2021). This move mirrors a broader attitude to using technology in public administration (Bedenkova 2021). As a result, digital government can only be pursued when e-governance is firmly established and validated in South Africa.

2.2.6 Digital Equity and Access

Digital equity ensures that all individuals and communities have the information technology capacity needed for full participation in society, democracy, and the economy (Willems *et al.* 2019). This involves ensuring access to affordable internet, digital devices, and digital literacy programs to prevent digital divides (Flanagan 2022; Shaw 2023). It is critical for meaningful participation in the digital age and is considered a key civil rights issue in many countries around the world (Willems *et al.* 2019). The recent COVID-19 pandemic highlighted the disparities in digital access within healthcare and their consequences. Therefore, despite the potential for digital technologies to address structural challenges for marginalised populations by lowering access barriers of time and distance, without proactive engagement and planning, digital health can exacerbate pre-existing health inequities (Lyles, Schillinger and Albright 2021), leading to similar inequities in other sectors of society.

2.2.7 E-government and e-governance

E-government and e-governance, while frequently used interchangeably, are distinct ideas. E-government focuses on the electronic delivery of services, whereas e-governance includes larger administrative reforms and participatory governance facilitated by digital technologies (Grigalashvili 2022). E-government refers to the use of ICT by government agencies to enhance the access and delivery of government services to citizens, businesses, and other arms of government (Saltaji 2019). E-governance extends beyond service delivery to include the use of ICT to improve the overall governance framework, encompassing policymaking, regulation, and citizen engagement (Kumar 2021). Vijay and Joyce (2020) note that in India, the use of open-source solutions and cloud computing has significantly enhanced the accessibility and efficiency of government services and demonstrated the practical impact of e-governance when implemented correctly. Although e-governance offers advantages, it encounters obstacles such as constrained financial resources, inadequate legal and technical infrastructure, and a reluctance to embrace change within public institutions. To tackle these difficulties, it is necessary to implement comprehensive plans and coordinate the activities of all parties involved (Gulati 2021). Moreover, addressing the digital divide and privacy are often major obstacles to implementing successful e-government initiatives (Malodia *et al.* 2021).

2.2.8 E-municipality

An e-municipality leverages digital technologies to streamline municipal services, improve efficiency, and enhance interactions with citizens (Güven 2022). This involves digitalising municipal functions such as service requests, payment systems, and public information dissemination to provide more accessible and efficient local government services. Tangi *et al.* (2022) note that municipalities with higher e-maturity tend to be more efficient in service-delivery. In Belarus, the e-municipality concept includes electronic appeals, rulemaking, and online representation of local authorities, as challenges remain in implementing more advanced features like electronic elections and meetings (Kisialiova 2022). For local municipalities to develop into e-municipalities within the South African context, there has to be greater financial investment in e-governance initiatives, which includes improving technical infrastructure and change management programmes to minimise resistance to change (Mayedwa and van Belle 2021).

2.2.9 E-readiness

E-readiness is the capacity of countries, corporations, and individuals to use digital technology (Simelane *et al.* 2020). This comprises infrastructure preparation, legal and regulatory frameworks, human resources, and the levels of ICT use in diverse sectors. It indicates how ready an entity is to participate in the digital economy. E-readiness involves a thorough assessment of how to plan for balanced and inclusive information technology at national and organisational levels. For extensive assessments, customised models adapted to specific industries or organisations are required (Shapour and Kamandi 2021). E-readiness in underdeveloped countries is evaluated using elements such as government backing, infrastructure, and human resources. These components are critical for adopting e-governance and improving public service delivery (Giri and Giri 2022).

2.2.10 E-services

E-services refer to the delivery of services using electronic networks, typically the internet (Ma, Yao and Yang 2021). These services may include e-commerce, e-banking, e-learning, e-health, and other government functions. The goal of e-services is to improve user accessibility, convenience, and efficiency by leveraging digital platforms.

2.3 SERVICE DELIVERY INNOVATION IN THE PUBLIC SECTOR

The public sector in countries around the world is increasingly using emerging technology to innovate and provide smart services that improve citizens' well-being. For example, mobile-based innovations in Indonesia's motor vehicle registration services have increased service intelligence and citizens' quality of life by increasing efficiency, effectiveness, transparency, and collaboration (Hartanti, Abawajy and Chowdhury 2022). Such innovation is necessary as modern governments face numerous complex challenges wrought by modern forces, such as economic globalisation, technological advancements, climate change, health crises, and social and political instability (Karaduman 2022; Danilov *et al.* 2022; Lindvall 2021; Beriša and Šuleić 2023; Allain-Dupré 2020). Christensen and Laegreid (2018) highlight that public sector innovation differs from private sector innovation in that it frequently involves balancing political, social, and economic objectives.

Public sector innovation involves the use of new ideas, technology, and processes to improve public administration and service delivery. This can involve both organisational innovations, such as reforming government agencies to make them more agile and responsive, and technological breakthroughs, such as using blockchain for safe and transparent transactions (Deloitte 2020). The concept of innovation in the public sector also includes the creation of new public values and outcomes, which may not necessarily align with profit-driven motives seen in the private sector. This broader approach ensures that innovation supports the overarching goal of public welfare and effective governance (Deloitte 2020).

The goal of Service Delivery Innovation (SDI) is to improve public service delivery to citizens. This includes increasing the accessibility, efficiency, and responsiveness of services. The use of service delivery innovation through ICTs to build more customised and citizen-centric service delivery models is an important feature. For instance, by forecasting citizen requirements and providing services proactively, artificial intelligence (AI), and big data analytics can reduce the need for citizens to have to navigate burdensome bureaucratic processes (Wiseman 2017).

Recent advances in SDI include the creation of digital government platforms that provide a "single view of the citizen." This strategy combines numerous citizen contacts with diverse government agencies into a single system, making it easier for

citizens to receive services and for governments to manage service delivery more effectively (IDB 2017). Current approaches to SDI in the public sector priorities the use of smart technologies and data-driven decision-making. For example, the use of AI-powered chatbots can increase citizen connection by responding quickly to frequent questions and assisting with navigating government services (El Gharbaoui *et al.* 2024).

According to Demircioglu and Audretsch (2019), it is critical to promote an innovative culture within public organisations to meet increased citizen expectations for transparency, accountability, and efficient service delivery. This involves empowering staff, fostering cross-departmental collaboration, and utilising relationships with the corporate and nonprofit sectors to co-create solutions.

Another method is to use digital platforms to deliver services more efficiently. These platforms combine numerous government services into a single online interface, decreasing the complexity and time required for citizens to access them. Furthermore, governments are increasingly embracing predictive analytics to better forecast service demand and allocate resources (Deloitte 2020).

Furthermore, collaborative initiatives, such as co-designing and co-producing services with residents, are gaining popularity. These strategies involve citizens in the design and delivery of services, ensuring that the solutions developed meet their current needs and preferences (Bovaird and Loeffler 2019; Fledderus, Brandsen and Honingh 2015).

2.4 GLOBAL TRENDS IN E-GOVERNANCE

The section discusses global trends and illustrative international experiences in e-governance to contextualise the study, rather than presenting detailed comparative case studies. Globally, e-governance strategies vary widely in scope and efficacy, owing mostly to a country's technological infrastructure, political will, and socioeconomic factors (Al-Rzoky *et al.* 2019). The range of e-services includes the ability of citizens to renew licenses, file taxes, and apply for social benefits online. Estonia in particular, is seen as a pioneering country in e-governance, thanks to its digital services such as i-Voting, e-Health, and digital IDs, which offer unparalleled access to governmental services (Olsen 2021).

Public participation and engagement have also benefited from the use of e-governance (Drobiazgiewicz 2018). People are using social media platforms, interactive websites, and mobile apps to enhance civic engagement and citizen participation in the political process. For example, Singapore's REACH portal encourages active involvement between citizens and authorities, fostering a collaborative approach to governance (Nguyen 2020).

E-governance has also been used to increase data collection and openness. Leading countries in e-governance make extensive use of data analytics to improve decision-making and policy effectiveness. Open data initiatives, in which governments make datasets publicly available, promote transparency, and allow individuals and experts to participate in more informed governance are numerous now (Harper 2022). One of the most visible developments in e-governance is the use of advanced technologies like AI, blockchain, and machine learning (Pal 2019). Government operations, data management, and decision-making processes are improving with the use of these technologies. For example, AI and machine learning are being used to automate mundane processes, analyse massive datasets, and provide predictive insights that aid policymaking and service delivery (Deloitte 2020). Particularly in land registry, voting systems, and supply chain management, blockchain technology enables secure and transparent transactions (OECD 2020).

Governments are increasingly focused on developing citizen-centric services that prioritise citizens' demands and experiences. This includes making services more accessible, user-friendly, and responsive. The concept of a "single view of the citizen" is gaining traction, in which governments combine numerous data points to provide a more unified and personalised service experience. This method not only improves efficiency but also increases citizens' pleasure and trust in government services (IDB 2017). Transparency and open data are now fundamental issues in e-governance. Governments are implementing open data policies to make government data publicly available, promoting transparency, accountability, and public participation. Open data projects give individuals, researchers, and entrepreneurs access to government data, resulting in increased innovation and the creation of new services and applications. For example, the European Union has extensive open data regulations in place to encourage the reuse of public sector information through the Directive (EU) 2019/1024 on Open Data and the Re-use of Public Sector Information, commonly referred to as

the Open Data Directive (European Commission, 2019). This directive replaces the earlier Public Sector Information (PSI) Directive and establishes a framework requiring EU member states to make public sector data more accessible and reusable for both commercial and non-commercial purposes (Janssen, Matheus and Longo 2021).

Collaborative governance models are also emerging as a major trend in which governments collaborate with business sector organisations, non-profits, and civil society to co-create solutions to public concerns. This collaborative approach draws on the experience and resources of multiple partners, enabling innovation and more effective service delivery. For example, the city of Amsterdam has adopted a space-sharing scheme that rents out underutilised government offices to civil society organisations, encouraging resource efficiency and community participation (OECD 2020). Ensuring digital inclusiveness and accessibility remains a major priority for e-government.

Governments are making efforts to close the digital divide, including giving access to digital tools and internet connectivity, particularly in underserved and rural communities. Initiatives like digital literacy programmes and public internet access points are critical to ensure that all citizens are able to use e-governance services (UN 2022). Sustainability and resilience are increasingly important components of e-governance solutions. Governments are embracing digital technologies to promote sustainable behaviours and strengthen resilience to a variety of challenges, including climate change and pandemics. Cities like Surabaya in Indonesia, for instance, have implemented projects that permit the use of recyclable materials as payment for public transit, thereby promoting sustainability and social inclusion (OECD 2020). These global trends in e-governance indicate a transition towards more inventive, inclusive, and efficient governance structures. Governments around the world are changing the way they deliver services and connect with residents by adopting sophisticated technology, prioritising public requirements, promoting transparency, fostering collaboration, ensuring digital inclusion, and focusing on sustainability.

2.5 E-GOVERNANCE IN DEVELOPING COUNTRIES

In developing countries, e-governance has emerged as an important part of public administration, with the goal of increasing the efficiency, transparency, and accessibility of government services. Despite the potential benefits, the

implementation of e-governance in developing countries requires tailored strategies to address specific socio-economic and infrastructural constraints.

2.5.1 Technological Infrastructure and Digital Divide

The lack of suitable technological infrastructure is a significant barrier to the deployment of e-governance in developing nations. Many areas have insufficient internet connectivity, a scarcity of computers and mobile devices, and a lack of technical knowledge among government officials and the public. In countries like Indonesia and Zimbabwe, there is a significant discrepancy in internet access among citizens, preventing widespread usage of e-government services (Ajibade, Napitupulu and Sarker 2017; Sarker, Xiao and Beaulieu 2019).

To close this gap, developing countries must invest in creating and updating their ICT infrastructures. This includes expanding broadband networks, providing more affordable internet services, and connecting rural and underserved communities. Furthermore, boosting digital literacy through education and training programmes is critical in enabling citizens to effectively use e-government services (Napitupulu *et al.* 2018).

2.5.2 Institutional and Policy Frameworks

Successful e-governance implementation also depends on the existence of supportive institutional and policy frameworks. Many developing countries lack comprehensive e-government policies and regulatory frameworks that can guide the implementation and ensure their alignment with national development goals. Establishing clear policies, legal frameworks, and standards is critical for creating an environment conducive to e-governance (Cloete 2012).

For example, countries like Kenya and Nigeria have made progress by developing national cybersecurity strategies and frameworks, which are essential for protecting data and ensuring the security of e-government systems (ITU 2019). These frameworks help build trust among citizens and encourage the use of digital services.

2.5.3 Public-Private Partnerships

Public-private partnerships (PPPs) emerge as a feasible solution to address the resource and expertise shortages that developing countries face. Governments can improve e-governance programmes by cooperating with private sector enterprises, which have the necessary technological competence, financial resources, and

innovative solutions. For example, the eFez Project in Morocco demonstrated the efficiency of PPPs in implementing e-government projects by providing practical support and resources for ICT development (Kettani and Moulin 2019).

2.5.4 Citizen Engagement and Participation

Engaging citizens in the development and implementation of e-governance programmes is critical to their success. Citizen participation guarantees that the services provided address the population's genuine needs and preferences. Innovative initiatives, such as co-creation and co-design, in which citizens participate in the development and design of e-government services, have been proved to improve service delivery and citizen satisfaction. For example, in South Africa, e-government initiatives have been tailored to address local challenges by involving citizens in the design process, thus ensuring that the services are relevant and accessible to all segments of the population (Cloete 2012).

2.5.5 Leveraging Emerging Technologies

Developing countries are actively investigating the use of emerging technologies like blockchain, AI, and mobile platforms to improve e-governance. Blockchain technology, for example, provides solutions for secure and transparent transactions, which are especially useful in sectors like property registry and voting systems. AI and mobile platforms can help offer services to remote and underserved communities, increasing the accessibility and efficiency of government services (Myeong and Jung 2019).

Finally, developing countries face significant challenges when it comes to implementing e-governance. However, by making strategic investments in ICT infrastructure, implementing supportive policies, fostering public-private partnerships, promoting citizen engagement, and embracing emerging technologies, these countries can successfully drive e-governance initiatives forward (Pangaribuan 2019). These efforts can lead to improved service delivery, higher transparency, and greater citizen participation, all of which contribute to socioeconomic growth.

2.6 E-GOVERNANCE IN SOUTH AFRICA

E-governance in South Africa has advanced significantly in recent years, motivated by the need to improve public service delivery, increase transparency, and cultivate greater citizen engagement. However, the voyage is laden with difficulties due to socioeconomic disparities, infrastructure constraints, and differing levels of digital

literacy among the people. This section provides an overview of the present level of e-governance in South Africa, including the tactics used and the obstacles encountered.

2.6.1 Current State of E-Governance in South Africa

The South African government has recognised the importance of leveraging ICT to enhance governance and service delivery. The National Development Plan (NDP) has integrated e-governance initiatives to promote inclusive growth and enhance the efficiency of government operations (Muridzi 2019). The government's approach to e-governance encompasses various sectors, including health, education, and municipal services, aiming to provide a seamless and efficient service delivery framework.

2.6.2 Policy and Strategic Frameworks Supporting E-Governance

This section presents some of the strategies and frameworks that have been developed or proposed to improve the adoption and effectiveness of e-governance in Society.

- **National Development Plan (NDP):** This national plan identifies digital transformation as a critical enabler of a capable and developmental state. The NDP emphasizes the use of ICT to improve coordination within government, enhance service delivery outcomes, and strengthen citizen engagement, particularly at the local government level where service delivery pressures are most acute (Kroukamp 2019).
- **National e-Government Strategy and Roadmap:** South Africa's e-government strategy sets out the goals for a digitally transformed public sector. This plan focuses on developing strong ICT infrastructure, improving digital skills among public workers, and promoting digital inclusion to guarantee that all citizens have access to e-government services (Kroukamp 2019).
- **Public-Private Partnerships (PPPs):** Public-private partnerships have played an important role in promoting e-governance. The government improves public services by cooperating with private-sector entities that provide extra resources, knowledge, and new solutions. Municipalities, for example, have collaborated with technology companies to create mobile applications that enable citizens to report issues and access services online (Muridzi 2019).

- **Local Government Initiatives:** Several metropolitan municipalities have established e-governance systems. For instance, cities like Johannesburg and Cape Town have developed online portals where citizens can pay bills, access public information, and engage with local government officials. These initiatives aim to improve transparency and accountability at the local government level (Muridzi 2019).

2.6.2 Challenges

- **Digital Divide:** Unequal access to ICT infrastructure and services is a significant challenge in South Africa, which is characterised by the digital divide. The reach and effectiveness of e-governance initiatives are frequently impeded by the absence of the necessary connectivity in rural and underserved urban areas. The ongoing endeavours to enhance ICT infrastructure and expand broadband access require substantial investment (Cloete 2012).
- **Digital Literacy:** The varying levels of digital literacy among citizens pose a barrier to the widespread adoption of e-governance services. The government has initiated digital literacy programmes to educate citizens on using digital tools effectively, but there is still a long way to go in achieving comprehensive digital literacy across the population (Kroukamp 2019).
- **Institutional Resistance:** Another obstacle is the resistance to change within government institutions. Some public servants are hesitant to implement new technologies and processes because they are apprehensive about job displacement or lack the necessary skills. In order to resolve this matter, it is imperative to implement ongoing training and change management initiatives (Muridzi 2019).

2.6.3 Success Stories

Despite the aforementioned challenges, there have been notable successes in South Africa's e-governance journey. Home Affairs' online services for passport and ID applications have significantly reduced processing times and improved service delivery efficiency. Additionally, the use of mobile platforms for health services, such

as the Mom Connect initiative, has enhanced access to healthcare information for pregnant women across the country (Muridzi 2019).

Overall, e-governance in South Africa is evolving, with considerable efforts focused on improving service delivery and increasing public engagement. While challenges like the digital divide, digital literacy, and institutional resistance exist, targeted ICT efforts and public-private partnerships show promise for a more efficient and transparent administration. Continued investment in infrastructure, education, and collaborative governance models will be critical to realise the full potential of e-governance in South Africa.

2.7 CHALLENGES AND BARRIERS TO SUCCESSFUL E-GOVERNANCE IMPLEMENTATION

Implementing e-governance effectively presents numerous challenges and barriers, particularly in developing regions. These challenges can be broadly categorised into technological, organisational, socio-economic, and cultural barriers.

2.7.1 Technological Barriers

- **ICT Infrastructure:** Many developing countries struggle with inadequate ICT infrastructure, which includes unstable internet connectivity and limited access to modern technology (Pangaribuan 2019). This infrastructure shortage impedes the general implementation of e-governance efforts (Muridzi 2019).
- **Cybersecurity:** Data security and the protection of sensitive information are of the utmost importance. E-governance systems are susceptible to cyber-attacks across numerous regions due to the absence of comprehensive cybersecurity frameworks (Kumar & Tripathi, 2021).

2.7.2 Organisational Barriers

- **Lack of Skilled Personnel:** There is often a shortage of adequately trained personnel to manage and operate e-governance systems. This skill gap can lead to inefficiencies and reduced effectiveness of e-governance services (Rana, Dwivedi and Williams 2013).

- **Resistance to Change:** The presence of institutional opposition is a substantial obstacle to the adoption of novel technology and procedures. Government employees may exhibit hesitancy in adopting digital transformation due to concerns around potential job displacement or a lack of experience with novel technology (Muridzi 2019).
- **Coordination and Information Sharing:** A lack of coordination among government departments and inadequate information-sharing processes impede the smooth implementation of e-governance projects (Samsor 2020).

2.7.3 Socio-Economic Barriers

- **Digital Divide:** Different socioeconomic groups have different levels of access to digital tools. People in rural areas who have low incomes often lack the tools and internet connectivity they need to use e-governance services, which makes inequality worse (Sarker, Xiao and Beaulieu 2019).
- **Funding Constraints:** The scope and scale of e-governance initiatives can be limited by a scarcity of financial resources. Adequate funding is indispensable for the construction and maintenance of the necessary technological infrastructure, as well as for the training of personnel (Ajibade, Napitupulu and Sarker 2017).

2.7.4 Cultural Barriers

- **Lack of Trust:** Building citizen trust in e-governance platforms is critical. Citizens may be hesitant to adopt e-governance services due to concerns about data privacy and the possibility for information exploitation (Rana, Dwivedi and Williams 2013).
- **Awareness and Education:** There is frequently a lack of understanding regarding the advantages and accessibility of e-governance services. Educating the public and increasing digital literacy are critical to promote the adoption and use of these services (Muridzi 2019).

To tackle these challenges, a comprehensive strategy is needed, which involves investing in ICT infrastructure, strengthening cybersecurity measures, boosting digital

literacy, and developing collaborations between the public and the private sector. By addressing these barriers, governments can enhance the execution and efficacy of e-governance programmes, resulting in increased efficiency, transparency, and inclusiveness of public services.

2.8 STRATEGIES FOR SUCCESSFUL E-GOVERNANCE IMPLEMENTATION

Implementing e-governance effectively requires a strategic approach that addresses both technological and human factors.

2.8.1 Successful Adoption and Adaptation Strategies

- **Stakeholder Engagement:** Engaging with all stakeholders, including government employees, citizens, businesses, and non-governmental organizations, is crucial. This engagement helps to ensure that the systems developed meet the needs and expectations of all user groups. Methods such as public consultations, workshops, and feedback mechanisms can facilitate this engagement and help in refining e-governance services (Anderson 2022).
- **Phased and Scalable Implementation:** Implementing e-governance systems in phases allows for the gradual introduction of changes, making it easier to manage and less overwhelming for both the public and government staff. This approach also helps with troubleshooting and refining systems on a smaller scale before a full rollout (Brown 2021).
- **Capacity Building and Training:** Investing in training for government staff is essential to ensure they are comfortable and proficient with new technologies. Continuous professional development and training programmes can help to update the skills of public employees and prepare them for changes brought about by e-governance (Lopez 2021).
- **Public-Private Partnerships (PPPs):** Collaborating with private sector companies can provide access to expertise, technology, and additional resources that may be beyond the reach of government alone. These partnerships can be crucial in developing innovative solutions and maintaining cutting-edge technological infrastructure (Kumar 2022).
- **Infrastructure Development:** Robust ICT infrastructure is the backbone of any successful e-governance initiative. Governments need to invest in high-quality

internet connectivity, data centers, and secure platforms to ensure the reliability and security of e-governance services (Martin 2021).

- **Regulatory and Legal Frameworks:** Developing comprehensive legal and regulatory frameworks that address issues such as data protection, privacy, and digital security is crucial. These frameworks not only protect citizens but also create a trustworthy environment for e-governance to flourish (Shah 2022).

2.8.2 Best Practices from Global Examples

- **Estonia's X-Road System:** Estonia's X-Road is a decentralised online platform that allows the nation's various public and private sector e-service information systems to link up and operate in harmony. This system is cited as a best practice due to its secure and efficient exchange of digital data between institutions (Olsen 2021).
- **Singapore's Single Digital Identity:** Singapore has implemented a single digital identity framework that allows citizens to access multiple government services securely and conveniently through one portal. This approach reduces the complexity for users and increases participation in e-governance services (Nguyen 2020).
- **India's Aadhaar System:** India's Aadhaar programme provides a unique identity number to every resident that is linked to their biometric data. This system has enabled a range of services from bureaucratic processes to financial transactions, making public services more accessible to a vast population (Singh 2022).

In essence, the strategies for successful e-governance involve a blend of technical, strategic, and operational components. By learning from successful global examples and continuously engaging with all stakeholders, governments can implement e-governance systems that are not only technologically advanced but also inclusive and responsive to the needs of their populations. Effective e-governance has the potential to transform public service delivery, making it more efficient, transparent, and accessible.

2.9 FUTURE TRENDS AND INNOVATIONS IN E-GOVERNANCE

Rapid technological advancements and evolving citizen expectations are shaping the future of e-governance. Several key trends and innovations are emerging that promise to transform how governments interact with and serve their citizens.

2.9.1 Blockchain Technology

Blockchain technology is gaining popularity as a key component in future e-governance systems. Its decentralized, secure, and transparent nature makes it perfect for a variety of government applications, such as secure voting systems, open public records, and efficient service delivery. Blockchain technology can improve confidence in government transactions and prevent fraud by creating a tamper-proof ledger of activity (Leonowicz and Jasiński 2021).

2.9.2 Artificial Intelligence (AI) and Machine Learning

Artificial intelligence and machine learning are increasingly being used to improve the efficiency and responsiveness of government services. These technologies can analyse enormous data sets to predict citizen demands, automate repetitive processes, and deliver personalised services (Bindu Kumar and Thomas 2019). For example, AI-powered chatbots can address basic questions, freeing up human resources for more difficult work (OECD 2019).

2.9.3 Augmented Reality (AR) and Virtual Reality (VR)

Augmented reality and VR are being studied for their ability to engage citizens in novel ways. These technologies enable immersive experiences for public discussions, urban planning, and education. For example, the city of Hamburg employed AR to engage citizens in the planning of new housing sites by visualising various scenarios and soliciting feedback through interactive sessions (OECD 2019).

2.9.4 Internet of Things (IoT)

The internet of things (IoT) is expected to play an important role in smart city projects. Governments may collect real-time data on everything from traffic flow to environmental conditions by linking many devices and sensors. This information

can be used to improve public services like waste management, energy distribution, and emergency response systems (MDPI 2021).

2.9.5 Data-Driven Decision Making

The increased availability of data enables governments to make better judgements. Big data analytics can provide insights into citizens' behaviour and needs, allowing for more targeted and effective policymaking. Governments are investing in data infrastructure and analytical tools to leverage data's potential for improving public services (Goldsmith and Kleiman 2022).

2.9.6 Mobile Governance (m-Governance)

With the proliferation of smartphones, m-governance is becoming an increasingly important component of e-governance (Batool, Abbas and Zaman 2021). Mobile applications make it easy for citizens to access government services, make payments, and receive updates. The emphasis is on developing user-friendly, accessible apps that can reach a wide audience, particularly those living in remote regions (OECD 2019).

2.9.7 Citizen Participation and Co-Creation

Future e-governance models will emphasise increasing citizen participation in decision-making processes. Governments are using co-creation initiatives, in which citizens actively participate in shaping public services and policy. This participative approach ensures that services fulfil the population's genuine requirements while also instilling a sense of ownership and trust (OECD 2019).

2.9.8 Sustainability and Green IT

Sustainability is becoming an important factor in e-governance. Governments are attempting to lessen the environmental impact of their digital infrastructures by implementing green IT practices. This involves utilising energy-efficient data centres, providing digital services that reduce paper consumption, and encouraging sustainable behaviour through digital tools (SpringerLink 2019).

Overall, the future of e-governance seems to be more interactive, data-driven, and inclusive, with cutting-edge technologies to improve service delivery and public involvement. Governments can better fulfil the changing requirements of their

constituents and develop more robust, transparent, and efficient public institutions by staying on top of these trends and innovating constantly.

2.10 THEORETICAL FRAMEWORK

This study is underpinned by the Technology Acceptance Model (TAM) and Public Value Theory (PVT), which together provide a comprehensive theoretical lens for analysing the implementation and effectiveness of e-governance in public service delivery within the eThekweni Metropolitan Municipality. These two key theories are used studying e-governance adoption and its impact on public value creation. The TAM assesses the adoption of e-governance technologies by users, focusing on perceived usefulness and ease of use (Davis 1989). Key concepts include perceived ease of use, perceived usefulness, behavioural intention to use, and actual system use. It helps predict potential hurdles in technology adoption and addresses them through training, user-friendly design, and clear communication. Public value theory evaluates the impact of e-governance systems from a broader perspective, focusing on value creation, accountability, transparency, and public trust and engagement (Lindgreen *et al.* 2019). It helps design and implement e-governance systems that are efficient, enhance citizen satisfaction, and promote democratic engagement.

By integrating these theories, the theoretical framework for this study provides a holistic understanding of the factors influencing e-governance implementation. This dual approach provides deep insights into the micro-level factors affecting individual acceptance of e-governance and the macro-level impacts on societal outcomes, facilitating more informed decision-making and strategic planning in public administration.

2.11 CONCLUSION

The literature reviewed highlighted that while e-governance has significant potential to transform public service delivery, its successful implementation requires overcoming substantial challenges, particularly in developing regions like South Africa. Adopting strategic approaches and learning from global best practices can aid municipalities like eThekweni in navigating these challenges effectively. The proceeding chapter will relay the research methodology employed in the study.

CHAPTER 3 RESEARCH METHODOLOGY

3.1 INTRODUCTION

This section discusses the methodology that was used in the study including the methods used for data collection and analysis. The chapter presents the research design, ethical considerations, data collection methods, data collection instrument, and data analysis methods used.

3.2 RESEARCH DESIGN

According to Saunders, Lewis and Thornhill (2019: 295), research design is a general plan of how the research will take place. Elements of the research design, according to Bougie and Sekaran (2019: 103), include the purpose of the study, research approach, researcher design research strategy, study area, sampling methods and data collection method. The section below discusses these elements in detail with justifications as to how they were applied in this study.

3.3 RESEARCH PHILOSOPHY

This study is grounded in a pragmatic research paradigm, which is well-suited for addressing real-world problems through the application of multiple research methods. Pragmatism emphasises practical solutions and prioritises methods that effectively address research questions over strict adherence to a singular philosophical tradition (Saunders, Lewis and Thornhill 2019). The study evaluates the effectiveness and efficiency of e-governance in enhancing public service delivery, utilising a pragmatic paradigm that offers a flexible and problem-oriented approach. The pragmatic paradigm facilitates the integration of quantitative and qualitative methods, enabling the study to measure service delivery outcomes while examining the experiences and perceptions of citizens and municipal officials occupying various positions.

3.4 RESEARCH APPROACH

According to Asenahabi (2019: 78), there are three types of research designs, namely the qualitative, quantitative, and mixed methods approach. These elements work hand in hand with other elements of the research design depending on the purpose and nature of the study. For instance, if a study is descriptive in nature, it needs to adopt the qualitative research approach. On the other hand, if the study is causal or exploratory in nature it would be more appropriate to use a quantitative research approach (Bougie and Sekaran 2019:172). Quantitative studies, according to Asenahabi (2019: 78), use experimental and non-experimental research design methods to collect data. Experimental research methods include true and quasi experiments which can be done in controlled environments like labs, while non-experimental research methods include the use of survey research, causal-comparative and correlation design (Bloomfield and Fisher 2019: 27-30).

Qualitative research methods, on the other hand, include data collection methods such as observations, interviews, in-depth studies, case studies, narrative research, phenomenological research, grounded theory, ethnography and action research (Peterson 2019: 148). Finally, a combination of qualitative and quantitative research is known as mixed methods research.

Mixed methods research, according to Asenahabi (2019: 78), is necessary for studies that converge or are exploratory or explanatory in nature. This study selected a mixed methods research approach because it sought to explore the usage of e-governance technologies in the eThekwini municipality in a comprehensive manner. A convergent mixed methods approach was employed for this investigation, in order to obtain a more holistic view of e-governance in the eThekwini Municipality, and to triangulate the data collected from the different cohorts in the study, namely managers, businesspeople, and general employees. The convergent mixed-methods approach is a research design in which both qualitative and quantitative data are collected simultaneously, analysed separately, and then merged to compare or complement findings (Creswell and Plano Clark 2017). The quantitative portion utilised survey questionnaires and for the qualitative portion, semi-structured interviews was used. Quantitative research

was deemed necessary to provide numerical data and statistical analysis that measures the impact and effectiveness of e-governance initiatives in public service delivery (Bloomfield and Fisher 2019: 27). On the other hand, qualitative data was chosen to offer rich descriptions, insights, and narratives that help in understanding contextual factors, perceptions, and experiences of citizens and government officials (Peterson 2019: 152). The combination of approaches can provide a more comprehensive picture of the research topic.

3.5 TARGET POPULATION

Sekaran and Bougie (2019: 222) define a target population as the entire group of elements, units or events that the researcher wishes to investigate. The target audience in other words is a group of people in which the researcher has a general interest (Saunders, Lewis and Thornhill 2019: 295). The target population for this study comprised three key groups: residents of the eThekweni Metropolitan Municipality, representatives from the local business sector, and municipal officials directly involved in service delivery and administrative functions. These officials were selected because of their direct involvement in the implementation, management or use of e-governance systems within the municipality. According to eThekweni Municipality (2024), the eThekweni Municipality spans an area of approximately 2 555 km with a population of around 4.4 million people. The municipality has several departments which work with the regional and national government to deliver services to the residents.

3.6 SAMPLING DESIGN

A sample is defined as a subset of the population that the researcher wishes to conduct the study on to represent the population (Bougie and Sekaran 2019: 227). Saunders, Lewis and Thornhill 2019: 296) note that the sample should be of sufficient size and chosen in a manner that allows generalisability of the entire target population. To achieve this, researchers need to adopt a sampling technique that produces satisfactory results.

3.6.1 Sampling Techniques

According to Saunders, Lewis, and Thornhill (2019: 297), there are two main sampling techniques, namely probability and non-probability sampling. With probability sampling, participants are chosen at random, giving every member of the population an equal chance of being chosen (Bougie and Sekaran 2019: 227). Simple random, systematic, stratified, and cluster sampling are some of the different types of probability sampling. Like its name simple random sampling involves selecting sample members at random from a larger population while systematic sampling uses a more formalised system to select a sample of participants (Berndt 2020: 224-226). Stratified sampling on the other hand involves grouping the population under study into distinct groups or strata, while cluster sampling contains participants that are similar but diverse (Rahman 2023). For this research, simple random sampling was adopted. A total of 385 survey questionnaires were distributed randomly to citizens and general employees of the municipality. This represents a sizeable number of users of government e-services.

While probability sampling provides elements an equal chance of being selected, in non-probability sampling elements of the population do not have an equal chance of being selected. Types of non-probability sampling includes convenience, haphazard, quota and purposive sampling techniques (Berndt 2020:225). Convenience sampling has to do with using members of the population that are readily available while purposive sampling has to do with the researcher selecting members of the population whom they believe will provide them with the needed responses (Bougie and Sekaran 2019:233). For the qualitative portion, this study adopted purposive sampling for non-probability sampling because it helps the researcher to get more refined information from participants who are well informed and experienced with the subject. To gain insightful knowledge based on experience, ten municipal officials of the eThekwini municipality were interviewed to find out their views on e-government systems.

3.7 DATA COLLECTION INSTRUMENTS

According to Bougie and Sekaran (2019: 142), a data collection instrument is a tool that contains a series of questions and is used by researchers to obtain information from research participants. According to Sharma (2022: 2) and Saunders, Lewis and

Thornhill (2019: 434), a standardised measuring instrument needs to possess the following attributes: validity, objectivity, appropriateness, and practicality.

Most questionnaires require the researcher to ask a number of predetermined and updated series of questions. This study collected data using a combination of questionnaires and interviews. Questionnaires were distributed to 385 employees and residents of eThekweni Municipality to find out about their opinion of e-government services. In addition, ten interviews were conducted with managers and councillors of the municipality to gain more in-depth information on the usage of e-government services.

The questionnaires were used as the data collection instrument for the quantitative research option. According to Taherdoost (2021: 14), questionnaires collect primary data that would not be available in secondary sources of information. The data gathered from questionnaires requires further quantitative analysis in order to be useful (Bougie and Sekaran 2019: 142).

In addition to questionnaires, the study used interviews as a data collection instrument. Interviews, according to Sharma (2022: 2), have the advantage of allowing the researcher to solicit more in-depth information from respondents. Secondly, interviews give the researcher the opportunity to ask follow-up questions, which cannot be done when questionnaires are used (Saunders, Lewis and Thornhill 2019: 434).

3.7.1 Design of data collection instruments

Data collection instruments were developed with the objectives of the study in mind. The questionnaire was divided into two sections, namely Section A and Section B. Section A was dedicated to demographic questions, which are questions that help to understand the profile of the participants. Section B consisted of closed ended questions that were asked, requesting respondents to answer with the assistance of a Likert scale, where they were given the option of selecting an answer, which indicated how strongly they agreed or disagreed with a statement. This was expected to provide some answers as to the opinions that participants had, with regards to the questions. On the other hand, interview questions for managers allowed for open ended responses. The interview questions were developed to allow respondents to share their views, experiences, and/or opinions re their usage of an e-government service.

3.7.2 Data collection procedures

Once full DUT ethics approval was granted, and gatekeeper's access from the eThekweni Municipality for permission to approach participants, the following steps were undertaken for to recruit participants. Firstly, potential participants were identified by means of municipal records and public databases. This was followed by initial contact made via email or phone to gauge their interest and/or eligibility. Secondly a follow-up was done with emails containing detailed information on the study, including objectives, requirements, and ethical considerations. Thirdly, informed consent (Appendix D) was obtained from willing participants and lastly scheduling interviews and distributing questionnaires (Appendix A).

After giving the respondents, a week to complete the questionnaire, the researcher personally collected the completed questionnaires. For both qualitative and quantitative data collection, the researcher personally administered the surveys. Personally administered surveys help the researcher to clarify questions which the participants may not understand (Bougie and Sekaran 2019: 142).

3.8 PILOT STUDY

According to Bougie and Sekaran (2019: 150), a pilot study is a preliminary investigation carried out to help with the design and development of a research instrument. For the pilot study, four participants were requested to peruse the questionnaire, and attempt to answer it. They were asked to comment and offer suggestions for refining the questionnaire. The findings from the pilot study were crucial in refining the research methodology for the main study, ensuring its effectiveness and efficiency in addressing the research objectives.

3.9 DATA ANALYSIS

According to Saunders, Lewis and Thornhill (2019: 297), a data set is created from the responses to the closed ended, structured quantitative questionnaire. The most appropriate statistical tests were used to analyse the data using the latest version of IBM SPSS for Windows.

3.9.1 Data analysis plan for quantitative data – statistical analysis

To accurately analyse quantitative data collected on the use of e-governance systems in the eThekweni Municipality, the following took place:

Data were checked and cleaned with regards to missing values, outliers, and inconsistencies in the dataset. IBM SPSS 29 was used to handle missing data, either by imputation or by excluding cases depending on the quality of the data. Data coding responses from the survey were coded for easy input into SPSS. For example, Likert scale responses, demographic data, and other categorical variables. Frequency analysis was run for all categorical variables to understand the distribution of data for gender, age, and occupation. Descriptive measures such as mean, median, mode, standard deviation, and range for continuous variables were calculated to get a sense of central tendencies and variability. Chi-Square Tests were used to examine the relationship between categorical variables like department and level of ICT adoption. Correlation Analysis was used to explore the relationships between the extent of ICT embracement and other continuous variables like years of service. The results were interpreted in the context of the research objectives and questions. SPSS output was used to create tables and graphs for a clearer presentation of results.

3.9.2 Data analysis plan for qualitative data – thematic analysis

Data analysis for qualitative data was done using Thematic Content Analysis (TCA). Microsoft Word was used to record interview data. Thematic Content Analysis is one of the most widely used techniques for analysing qualitative data and it examines topics and contexts that are provided by participants in the form of themes (Bougie and Sekaran 2019: 307). The researcher employed codes to systematically assess the data and summarise the results based on participant responses as well as dimensions and topics that were brought up throughout the interviews.

3.10 DATA MANAGEMENT

Data storage and protection is an essential element in research to ensure that sensitive information such as personal identifiers are protected from unauthorised and malicious use (Saunders, Lewis and Thornhill 2019: 356). For this study, the following measures were employed: Hard copies, such as interview notes, audio tapes and completed questionnaires, were kept securely locked away in a locked filing cabinet

that can only be accessed by authorised individuals (researcher and supervisor). After a period of five years, all paper files will be shredded. The audio files were encrypted and password protected, with access only possible for those authorised individuals.

3.11 TRUSTWORTHINESS (QUALITATIVE DATA)

Trustworthiness is a qualitative research phenomenon that aims to determine how a study demonstrates rigour and quality (Adler 2022: 600). According to Ahmed (2024:2), there are four components that can be used when evaluating validity and reliability in qualitative research. These include credibility, reliability, confirmability, and transferability. Transferability is defined by Bougie and Sekaran (2019: 319), as the extent to which the findings of qualitative research may be used in different situations or contexts. To guarantee transferability, the study obtained precise accounts of the participant's viewpoints and experiences.

There is also dependability which is the capacity of the results to hold true over time (Adler 2022: 601). The transparency of the talks and the thoroughness of the descriptions bolstered evaluations of the study's conclusions, interpretation, and suggestions. Confirmability is defined as the level of objectivity required to ensure the intersubjectivity of the data (Ahmed 2024: 3). To ensure confirmability, the study presented frank explanations of the research methodology that are grounded in the facts rather than the researcher's personal preferences and beliefs.

3.12 VALIDITY AND RELIABILITY (QUANTITATIVE DATA)

According to Bougie and Sekaran (2019: 211), the traditional standards by which scientific research is evaluated are known as validity and reliability. The concepts of validity and reliability are discussed below in detail.

3.12.1 Validity

The extent to which a scale measures what it is intended to assess is referred to as validity (Bougie and Sekaran 2019: 271). The question of validity pertains to the veracity of the variables' cause and effect relationships with the external environment. To examine the effectiveness and efficiency of e-governance in improving service delivery in the eThekweni Municipality, the questionnaire was used as the research instrument. The questionnaire was designed to guarantee the validity for the quantitative data analysis.

Four types of validity can be identified, namely, contemporaneous validity, criterion validity, content validity, and face validity. Face validity is the degree to which the research strategy achieves the study's goals and objectives (Saunders, Lewis and Thornhill 2019: 516). The purpose of the study and the research goals influenced the measurement instrument's design. Conversely, content validity is the extent to which a measurement tool accurately captures all aspects of a certain concept (Bougie and Sekaran 2019: 208). According to Bougie and Sekaran (2019: 208), content validity refers to how well a research instrument captures every facet of a certain concept. Concurrent validity, according to Lin and Yao (2024: 1304), measures how closely test, or measurement findings match those of earlier assessments of the same concept. All the objectives' components were covered by the questions in the measuring device. The reviewer and supervisor of the researcher helped to approve the study's instrument. The content validity was assessed through the pilot study. Notelaers *et al.* (2019:62) state that the most effective method for proving the validity of a pre-employment test is through criterion validity.

3.12.2 Reliability

According to Sürücü and Maslakci (2020: 2694), reliability is the degree by which methods for gathering data will produce consistent results if used again. According to Bougie and Sekaran (2019: 271), participant error, situational factors, processing error, instrument error are the four factors that can compromise reliability. To prevent these errors, the study used robust measures recommended by various authors including personal administration of questionnaires which was done to clarify questions to reduce participant error and subject error.

3.13 ETHICAL CONSIDERATIONS

Saunders *et al.* (2019) assert that consistent ethical norms must be adhered to in research. Adhering to these ethical norms facilitates the advancement of research objectives, including knowledge, truth, and the prevention of error. The proposed study will adhere to the following ethical norms.

3.13.1 Ensuring participants have informed consent

Participants in a research study gave their voluntary consent by signing an agreement. Through the Durban University of Technology letter of information (see Annexure), participants were asked to consent to the study, guaranteeing that the information shared during data collection would remain confidential and that their identities would remain anonymous.

3.13.2 Ensuring no harm comes to participants

According to Bougie and Sekaran (2019: 185), it is imperative for researchers to ensure that participants are willing to participate and that they are asked to provide informed permission prior to participation. Through the information letter from DUT, participants were made aware that their participation in the study is entirely voluntary and that they may withdraw at any moment if necessary.

3.13.3 Ensuring confidentiality and anonymity

According to Bougie and Sekaran (2019), protecting participants from injury, obtaining informed consent, and respecting their right to privacy are some ethical considerations. Participants were informed that their responses will only be accessible to the supervisor and the researcher.

3.14 CONCLUSION

This chapter of the study discussed research design and data collection techniques that were used in this study. The chapter also covered ethical issues, which are crucial to maintaining the credibility of the research and the institution. The data gathered from the study will be presented in the following chapter. The chapter that is following will present the results of the data analysis.

CHAPTER 4: DATA PRESENTATION AND ANALYSIS

4.1 INTRODUCTION

This chapter focuses on data presentation, analysis and interpretation of results based on the feedback from responses gathered during the data collection phases. Responses gathered from the respondents were screened and properly coded to ensure data entry accuracy and to avoid missing data in Excel format. Coded data were transferred to SPSS version 29 for descriptive and inferential statistical analysis. Frequency analysis was run for all categorical variables to understand the distribution of data for gender, age and occupation. Descriptive measures such as mean, median, mode, standard deviation, and range for continuous variables were calculated to get a sense of central tendencies and variability. Chi-Square Tests were used to examine the relationship between categorical variables like department and level of ICT adoption. Correlation Analysis was used to explore the relationship between the extent of ICT adoption and other continuous variables like years of service. The results were interpreted within the context of research objectives and questions. SPSS output was used to create tables and graphs for a clearer presentation of results.

4.2 RELIABILITY ANALYSIS

To assess the reliability of the findings and determine whether they would remain consistent with a larger sample size, Cronbach's Alpha (CA) was employed as a measure of reliability. According to Taber (2018), CA is a statistic commonly quoted by authors to demonstrate that tests and scales that have been constructed or adopted for research projects are fit for purpose. This metric ranges between 0 and 1, with a value of 0.7 or higher indicating a significant level of reliability, suggesting that similar outcomes would be attained with an expanded sample size. The CA was computed for variables pertinent to each objective outlined in this study. The outcomes are presented in Table 4.1.

Table 4.1: Reliability analysis: Cronbach's Alpha

Item	Cronbach's Alpha
Awareness and Usage of E-Governance Services	
Perceived Effectiveness of E-Governance Services	0.899
Challenges in Using E-Governance Services	0.797

Source: Author's Compilation

Table 4.1 shows the CA reliability coefficients, which are above 0.7, indicating that the researcher should obtain similar results if the survey was conducted on a larger sample of respondents.

4.3 RESPONSE RATE

A total of 389 questionnaires were distributed to employees and residents of the eThekweni Municipality to establish their opinions of e-government services. All 389 were completed and returned. Therefore, it can be stated that there was a valid response rate of 100%. This response rate (100%) was greater than the minimum recommended response rate of 60% acceptable threshold as suggested by Johnson and Wislar (2012).

4.4 ANALYSIS OF RESPONDENTS DEMOGRAPHIC DATA

The demographic information is divided into five sections. These sections include, gender, level of government, highest level of education, age category, and number of visits to the municipality. This section reports the analysis of the demographic data consisting of different categories in the administered questionnaires from the respondents, achieved via descriptive statistics.

4.4.1 Gender

The frequency distributions of respondents in Table 4.2 show that from a total sample of 389 employees and residents of eThekweni Municipality, 184 (47.3%) were obtained from females, while 205 (52.7%) of the sampled respondents were male. These

statistics indicate that a greater number of males than females participated in the study.

Table 4.2: Frequency distributions of respondents' gender

		Frequency	Valid Percent	Cumulative Percent
Valid	Male	205	52.7	52.7
	Female	184	47.3	100.0
	Total	389	100.0	

Source: Extract from Data Analysis.

4.4.2 Level of Government

The frequency distributions of respondents' levels of government position in the survey questionnaire were organised by approved standards into three categories: Local Government, Provincial Government, and South African Government. Of these, 252 members occupied the Local Government representing the majority, 112 were in the Provincial Government and 25 sampled members were on the country level for South Africa. The percentage of frequency distributions of eThekweni municipality members' governmental level were 64.8 percent for local government, 28.8 percent for provincial government and 6.4 percent at the South African national level. The depiction of the statistical analysis (see Table 4.3) confirms that the majority of the members sampled belong to the local government.

Table 4.3: Frequency distributions of level of government

		Frequency	Valid Percent	Cumulative Percent
Valid	Local government	252	64.8	64.8
	Provincial government	112	28.8	93.6
	South Africa	25	6.4	100.0
	Total	389	100.0	

Source: Extract from Data Analysis.

4.4.3 Highest Level of Education

Table 4.4 represents the frequency distributions of respondents' education levels. Two members' representing 0.5% of sampled respondents were found to possess no formal education, while 152 members representing 39.1% of sampled respondents were found to possess grade 12. A further 146 members, representing 37.5% of respondents, were in possession of a national certificate and 51(13.1%) possessed a national diploma. Finally, 38 (9.8%) of the respondents had completed a postgraduate degree. Overall, this confirms that most respondents had at least completed a grade 12 which is the minimum level of education in the hierarchy of levels of education in South Africa.

Table 4.4: Highest level of education

		Frequency	Valid Percent	Cumulative Percent
Valid	No Formal Education	2	.5	.5
	Grade 12	152	39.1	39.6
	National Certificate	146	37.5	77.1
	National Diploma	51	13.1	90.2
	Postgraduate Degree	38	9.8	100.0
	Total	389	100.0	

Source: Extract from Data Analysis.

4.4.4 Age

The frequency distribution of respondents' age is presented in Table 4.5. It was found that out of 389 respondents, 55 were within the age brackets of 18-30 years, while 267 were between the ages of 31–40. The majority of the respondents fell into this age group. A further 66 respondents were within the ages of 41- 50 years, while one

respondent was found to be within 51-60 years in age. Percentage distributions are reflected in Table 4.5.

Table 4.5: Frequency distributions of age

		Frequency	Valid Percent	Cumulative Percent
Valid	18 to 30 years	55	14.1	14.1
	31 to 40 years	267	68.6	82.8
	41 to 50 years	66	17.0	99.7
	51 to 60 years	1	.3	100.0
	Total	389	100.0	

Source: Extract from Data Analysis.

4.4.5 Number of Municipality Visits

The number of visits that respondents from different age groups made to the eThekweni municipality was taken into consideration in the research study. These figures are indicated in Table 4.6. The table indicates that 15.4% (60) of the participants visited once, while 60.9% (237) visited the municipality twice (representing the greatest number of visits). A further 16.7% (65) paid at least three visits, while 3.6% (14) visited more than 5 times. Finally, 3.3% (13) visited regularly. Table 4.6 clearly shows that the majority of respondents claimed that they had visited the municipality at least twice.

Table 4.6: Frequency distribution of visits to the municipality

		Frequency	Valid Percent	Cumulative Percent
Valid	1st Visit	60	15.4	15.4
	Twice	237	60.9	76.3
	Thrice	65	16.7	93.1
	More than five times	14	3.6	96.7

	Regular visitor	13	3.3	100.0
	Total	389	100.0	

Source: Extract from Data Analysis.

4.5 ANALYSIS OF THE RESPONDENTS' RESPONSES

The tables in the following sections represent an analysis of respondents' responses.

4.5.1 Awareness and Usage of E-Governance Services

The awareness and usage of e-governance services will be discussed in the sections that follow.

4.5.1.1 Awareness of e-governance services provided by the eThekwini Municipality

As indicated in Table 4.7 ,100% of the participants (389) who took part in the study are aware of the e-governance services provided by the municipality of eThekwini.

Table 4.7: Frequency distribution of aware of the e-governance services

		Frequency	Valid Percent	Cumulative Percent
Valid	Yes	389	100.0	100.0

Source: Extract from Data Analysis.

4.5.1.2 Frequency of using e-governance services provided by the eThekwini Municipality

Table 4.7 shows that most of the respondents (217) representing 55.8% use e-governance services every week; 23.9% use it monthly; 11.6% rarely use e-governance services; and 8.7% (34) use the services daily.

Table 4.8: Frequency distribution on the use of e-governance services

		Frequency	Valid Percent	Cumulative Percent
Valid	Daily	34	8.7	8.7
	Weekly	217	55.8	64.5
	Monthly	93	23.9	88.4

	Rarely	45	11.6	100.0
	Total	389	100.0	

Source: Extract from Data Analysis.

4.5.2 Perceived Effectiveness of E-Governance Services

Table 4.9 captures the responses to the research questions to do with the perceived effectiveness of e-governance services.

Table 4.9: Perceived effectiveness of e-governance services

	Item		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev.
3.1	E-governance services have made it easier to access municipal services.	Count	0	5	1	303	80	4.18	0.478
		%	0%	1.3%	0.3%	77.9%	20.6%		
3.2	E-governance services have improved the efficiency of public service delivery.	Count	0	0	0	261	128	4.33	0.470
		%	0%	0%	0%	67.1	32.9		
3.3	E-governance services have increased transparency in municipal operations.	Count	0	0	0	249	140	4.36	0.481
		%	0%	0%	0%	64.0%	36.0%		
3.4	E-governance services have reduced the time taken to receive services.	Count	0	0	0	281	108	4.28	0.448
		%	0%	0%	0%	72.2%	27.8%		
3.5	E-governance services have reduced the cost of accessing municipal services.	Count	0	0	0	292	97	4.25	0.433
		%	0%	0%	0%	75.1%	24.9%		
3.6	Overall, am I experienced with the e-governance services.	Count	1	1	0	335	52	4.12	0.391
		%	0.3%	0.3%	0%	86.1%	13.4%		

Source: Author's compilation

The descriptive statistics in Table 4.9 reveal that most of the respondents (77.9%) agreed that e-governance services have made it easier for them to access municipal services. This study also found that a large majority of the respondents (86.1%) agreed that they are experienced with e-governance services. About 67.1% of the respondents are sure that e-governance services have improved the efficiency of public service delivery. While 64.0% of members agreed that e-governance services

have increased transparency in municipal operations, a further 36.0% strongly agreed with the same statement.

While the majority (75.1%) of the respondents showed agreement, a further 24.9% strongly agreed that e-governance services have reduced the cost of accessing municipal services. Finally, a total of 72.2% agreed and 27.8% strongly agreed that e-governance services reduced the time taken to receive services. The mean and standard deviation of the total of responses for each question is indicated in the last two columns of Table 4.9.

The outcome of the responses also reflects that the majority of the of respondents are in agreement that e-governance services are effective in eThekweni municipality as indicated by the high value of means for all the constructs.

4.5.3 Challenges in Using E-Governance Services

Table 4.10 outlines the responses in reply to questions on the potential challenges experienced by respondents when using e-governance services. With respect to challenge one which questioned whether respondents faced technical difficulties when using e-governance services, 25.2% of the residents strongly disagreed and 73.8% disagreed that they had. Only 1.0% indicated that they faced technical difficulties when using e-governance services.

With regards to challenge two, 12.9% strongly agreed and 86.6% agreed, that a lack of access to the internet presented a barrier to them using e-governance services. However, a small percentage (0.5%) disagreed that a lack of internet access was a barrier to the use of e-governance services for them.

Challenge three revealed that respondents' perceptions of a lack of awareness about the availability of e-governance services showed that 17.2% strongly agreed, 51.7% agreed, while 26.7% disagreed.

Table 4.10: Responses on challenges in using e-governance services

S/N	Item		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev.
Challenge 1	Face technical difficulties when using e-governance services.	Count	98	287	0	4	0	1.77	0.490
		%	25.2%	73.8%	0%	1.0%	0%		
Challenge 2	Lack of internet access is a barrier to using e-governance services.	Count	0	2	0	337	50	4.12	0.368
		%	0%	0.5%	0%	86.6%	12.9%		
Challenge 3	There is a lack of awareness about the availability of e-governance services.	Count	16	104	1	201	67	3.51	1.174
		%	4.1%	26.7%	0.3%	51.7%	17.2%		
Challenge 4	The e-governances not user-friendly.	Count	93	245	0	41	10	2.05	0.944
		%	23.9%	63.0%	0%	10.5%	2.6%		
Challenge 5	There is inadequate support from the municipality for using e-governance services.	Count	210	154	0	19	6	1.60	0.848
		%	54.0%	39.6%	0%	4.9%	1.5%		

Source: Author's compilation

In response to challenge four, 23.9% of respondents strongly disagreed that e-governance services are not user friendly, while a further 63.0% disagreed. However, 10.5% slightly agreed. Finally, challenge five which suggested that there is inadequate support from the municipality for using e-governance services revealed that 54.0% of the respondents strongly disagreed and 39.6% disagreed with the statement. This section suggests that a lack of internet access presents a major challenge to the use of e-governance services, along with a lack of awareness about the availability of e-governance services. .

4.6 ANALYSIS OF RESEARCH QUESTIONS

In this section, the inferential statistical tool using SPSS version 29 was utilised to examine the degree of association between the variables and respond to the research questions. Chi-Square, ANOVA tests and Correlation Analysis were carried out as part of the inferential statistics to assist in a better understanding of e-governance services.

4.6.1 RQ 1- To what extent has the eThekweni Municipality embraced ICT for e-governance in service delivery?

Examination of the relationship between categorical variables and the level of ICT adoption was conducted using Chi-Square Tests. The relationship between the extent of ICT embracement and other continuous variables was also established by means of Correlation Analysis.

Table 4.11 presents the relationships between the government levels and the number of times that people from those various levels visit the municipality in search of e-governance services. Table 4.11 reflects that respondents from local government and provincial government levels were more likely to seek the services of the municipality on all occasions, i.e. first time, twice, thrice, more than five times and regularly. However, those on the national level (South Africa) were less likely to visit the municipality for e-governance services regularly but might have done so, once or twice. This indicates that people from the lower levels of government were more likely to visit the municipality for e-governance services as compared to those in the higher level of governance.

Table 4.11: Level of government vs. number of times one visited the municipality

			How many times have you visited the municipality?					Total
			Once	Twice	Thrice	> Five	Regular	
What is your level of government ?	Local government	Count	35	164	37	8	8	252
		ExpectC ount	38.9	153.5	42.1	9.1	8.4	252.0
		Count	15	60	27	6	4	112

	Provincial government	ExpectCount	17.3	68.2	18.7	4.0	3.7	112.0
	South Africa	Count	10	13	1	0	1	25
		ExpectCount	3.9	15.2	4.2	.9	.8	25.0
Total	Count		60	237	65	14	13	389
	ExpectCount		60.0	237.0	65.0	14.0	13.0	389.0

The Pearson Chi-Square statistics value is 21.272 with a p-value of .006. The p-value is significant as this value is less than the designated alpha level of .05 indicating that there is an association between the level of government and the number of times one visits the municipality to seek e-governance services. Table 4.12 below shows the relationship between gender and the number of visits one makes to the municipality for e-governance services.

Table 4.12: Gender vs number of times one visited the municipality

E			How many times have you visited the municipality?					Total
			Once	Twice	e	> 5 Times	Regular	
Gender	Male	Count	28	127	34	7	9	205
		Expected Count	31.6	124.9	34.3	7.4	6.9	205.0
	Female	Count	32	110	31	7	4	184
		Expected Count	28.4	112.1	30.7	6.6	6.1	184.0
Total		Count	60	237	65	14	13	389
		Expected Count	60.0	237.0	65.0	14.0	13.0	389.0

The Pearson Chi-Square statistics value is 2.421 with a p value of .659 > 0.5, hence there is no significance between gender and the number of visits to the municipality

for e-governance services. Therefore, there is no association between the two variables meaning both males and females have almost equal chances of visiting the municipality due to the p-value not being statistically significant.

Table 4.13 shows the relationship between the level of education and the number of visits one makes to the municipality for e-governance services. From Table 4.13 it can be observed that people with low or no formal education are less likely to visit the municipality, whereas those with moderate education are likely to visit the municipality frequently. However, those with higher qualifications are also less likely to visit the municipality for e-governance services.

Table 4.13: Level of Education vs Number of times one visits the municipality

			How many times have you visited the municipality?					Total	
			Once	Twice	Thrice	>Five Times	Regular		
ee	No Formal Education	Count	0	2	0	0	0	2	
		Expected Count	.3	1.2	.3	.1	.1	2.0	
	Grade 12	Count	29	84	28	4	7	152	
		Expected Count	23.4	92.6	25.4	ee	5.1	152	
	National Certificate	Count	16	113	13	1	3	146	
		Expected Count	22.5	89.0	24.4	5.3	4.9	146	
	National Diploma	Count	6	29	11	4	1	51	
		Expected Count	7.9	31.1	8.5	1.8	1.7	51.0	
	Postgrad Degree	Count	9	9	13	5	2	38	
		Expected Count	5.9	23.2	6.3	1.4	1.3	38	
	Total		Count	60	237	65	14	13	389

	Expected Count	60	237	65	14	13	389
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The Pearson Chi-Square statistics value is 54.177 with a p value less than .001. The p-value (<.001) is therefore significant as this value is less than the designated alpha level (normally .05) indicating that there is an association between the level of education and the number of times one visits the municipality to seek e-governance services. The relationship between the extent of ICT embracement and age variable will be established using the Correlation Analysis as indicated from Table 4.13. The correlations from Table 4.13 show that age is moderately correlated to number of times one visits the municipality (*corr = 0.184*).

Table 4.14: Correlations of Age and number of times one visits the municipality

		What is your age?	How many times have you visited the municipality?
What is your age?	Pearson Correlation	1	.184**
	Sig. (2-tailed)		.000
	N	389	389
How many times have you visited the municipality?	Pearson Correlation	.184**	1
	Sig. (2-tailed)	.000	
	N	389	389
** . Correlation is significant at the 0.01 level (2-tailed).			

4.6.2 RQ2- To what extent have e-governance initiatives enhanced the efficiency and effectiveness of public service delivery in the eThekweni Municipality?

ANOVA was used for comparing the efficiency and effectiveness between different groups (e.g. departments, age groups). On the other hand, a regression analysis was used to determine predictors of efficiency and effectiveness in service delivery. A one-way ANOVA was conducted to determine whether the level of government (local, provincial, national) impacts the efficiency and effectiveness of public service delivery

in the municipality. A one-way ANOVA test was conducted using a post-hoc test. The test was to establish if there was a statistically significant difference between the level of government with respect to e-governance services making it easier to access municipal services and/or improving the efficiency of public service delivery in the municipality. The results indicate a significant effect [$F(3, 43) = 4.18, p = .033$].

Post-hoc tests were conducted using Tukey's HSD test. The comparison revealed significant difference between local government ($M=4.13; SD=.492$) and provincial government ($M=4.26; SD=.440$); and between South Africa ($M=4.56; SD=.507$) and local government level ($M=4.32; SD=.468$). Therefore, the null hypothesis that different levels of government (local, provincial, South Africa) have the same effect on the efficiency and effectiveness of public service delivery in the municipality was rejected.

In addition, another one-way ANOVA was conducted to determine whether the effect of level of government (local, provincial, national) and age has an impact on the efficiency and effectiveness of public service delivery in the municipality. There was a statistically significant difference between groups as determined by one-way ANOVA ($F(2,27) = 5.476, p = .001$).

4.6.3 RQ3- What challenges and barriers in the implementation and utilisation of e-governance systems and processes has the eThekweni Municipality faced?

An exploratory factor analysis (EFA) was performed for the purpose of dimension reduction to have a more parsimonious representation that will be used as a composite measure for the subsequent analyses. In performing exploratory factor analysis, the study used the principal components extraction method with varimax rotation. Exploratory Factor Analysis was conducted to identify underlying factors or constructs that represent challenges and barriers. In addition, a Mann-Whitney U Test was also conducted to check if the data is not normally distributed, to compare perceptions of challenges between different groups.

From the test statistics, the Z-value is -2.257 and the $p = .024 (< .05)$, indicating that the challenge of facing technical difficulties when using e-governance services is highly significant in the provision of e-governance services. Another challenge that could be faced by people seeking e-governance services is a lack of awareness about the availability of e-governance services. The Z-value is -2.587 and $p = .010 (< 0.05)$,

showing that this is a significant factor From the Mann-Whitney test conducted there is not much significant difference between the perceptions of different genders with respect to the challenges faced in using e-governance services.

4.7 QUALITATIVE FINDINGS

This section will present the demographic characteristics of the interviewed participants and the findings from thematic analysis of the qualitative data obtained.

4.7.1 Demographic Characteristics of the Participants

A total of ten semi-structured interviews were conducted, which is the point when data saturation was reached. Most of the participants worked in the eThekweni Municipality in different departments and levels. These included administrative officers responsible for processing service requests, ICT support personnel involved in maintaining e-governance platforms, customer service officials interfacing directly with citizens, and supervisory staff overseeing service delivery operations. The inclusion of participants across different functional levels enabled a comprehensive understanding of both operational and strategic perspectives on e-governance implementation.

4.7.1.1 Gender Profile of the participants

Figure 4.1 shows that 40% (n=4) of the ten participants were male, while 60% (n=6) were females. This distribution closely reflects eThekweni Municipalities gender distribution in the general populace, which is presently 49.9% male and 50.1 % females (eThekweni Municipality 2023).

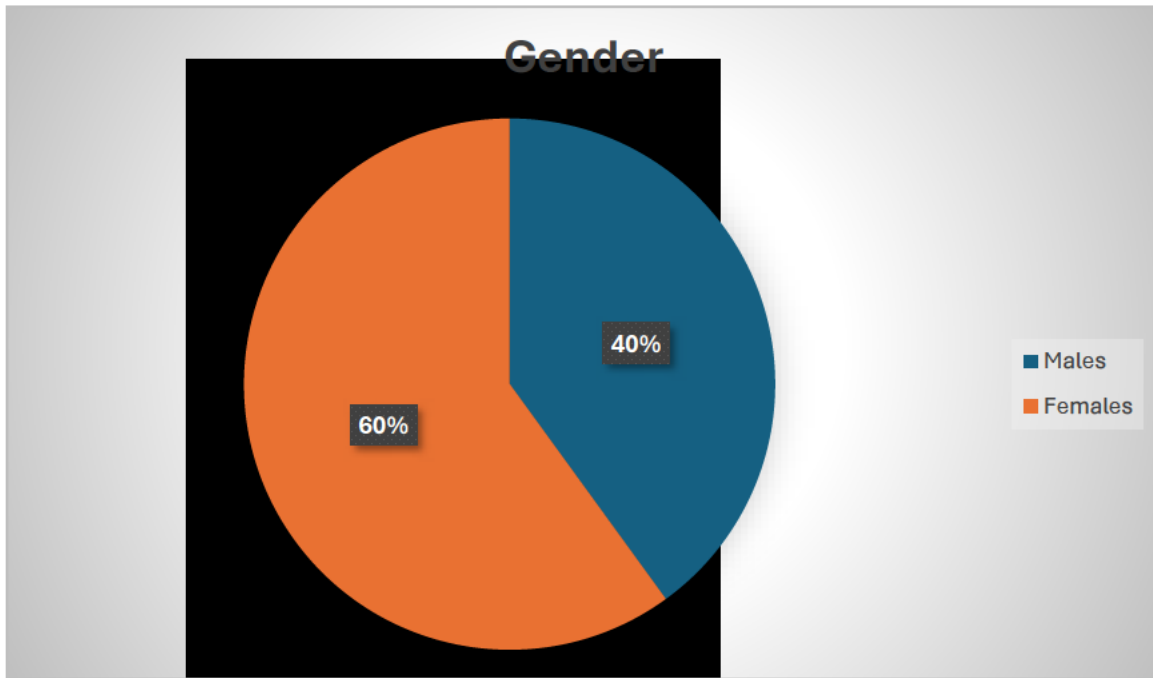


Figure 4.1: Gender Profile of the Participant

4.7.1.2 Educational-related Characteristics of the Participants

The participants' educational profile was collated, with all the participants having a university qualification. All 4 males possessed post-graduate qualifications, and all the females represented (n=6) possessed undergraduate professional. The qualifications ranged from diplomas in public management, to qualifications in auditing and cost & management accounting; represented a spectrum of qualifications and expertise. Figure 4.2 presents their educational profile.

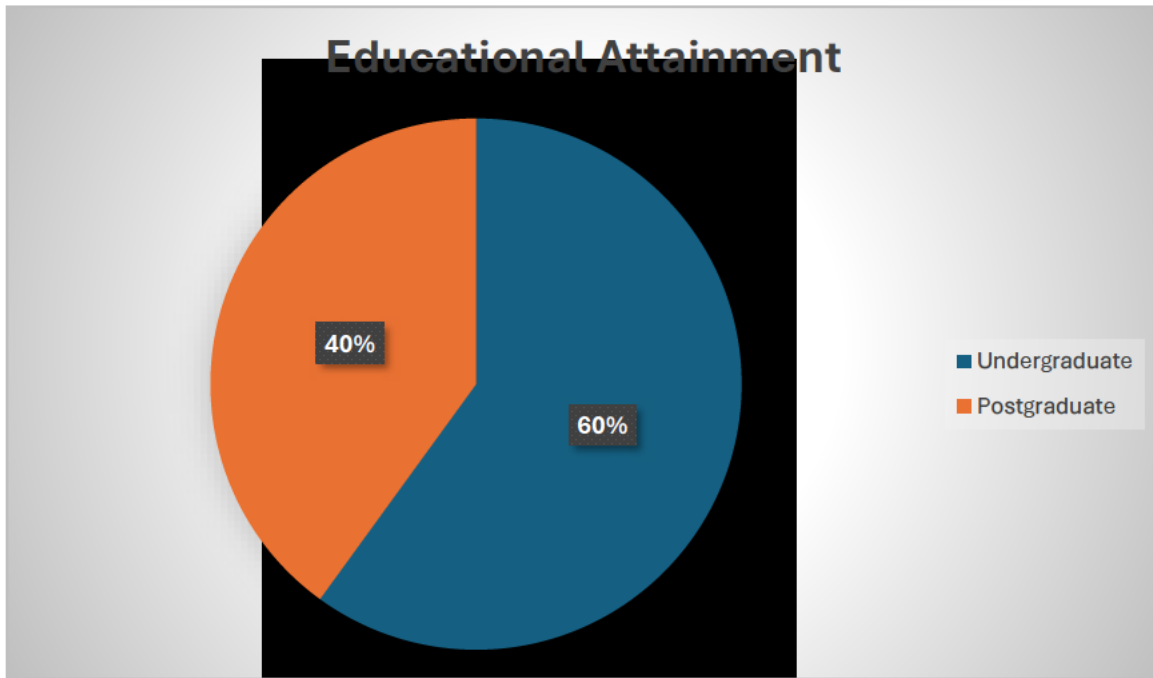


Figure 4.2: Educational Profile of Participants

4.8 THEMES AND SUBTHEMES

The participants were asked a total of 16 questions to gather their perspectives about the efficiency and effectiveness of e-governance services in improving service delivery in the municipality. From the analysis of the interview data, a total of 6 themes and 14 subthemes were developed, which are presented in the table below.

Table 4.15: Themes and Subthemes

Themes	Subthemes
Impact on Service Delivery and Efficiency	<ul style="list-style-type: none"> ➤ Increased Efficiency ➤ Cost Reduction ➤ Transparency and Accountability
Challenges in Implementation	<ul style="list-style-type: none"> ➤ Digital Divide ➤ Technical and Financial Constraints ➤ Resistance to change
Inclusivity and Accessibility	<ul style="list-style-type: none"> ➤ Public Engagement and Digital Literacy ➤ Community Infrastructure
Data Privacy and Security	<ul style="list-style-type: none"> ➤ Adherence to Privacy Laws ➤ User Confidence and Security Protocols
Adaptation and Training for Staff and Departments	<ul style="list-style-type: none"> ➤ Change Management ➤ Continuous Learning

Evaluation and future improvements	<ul style="list-style-type: none"> ➤ Metrics for Success ➤ Sustainability and Scalability Plans
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4.8.1 Impact on Service Delivery and Efficiency

One of the goals of conducting the interviews was to ascertain the perceptions of municipal workers about the perceived impact of the introduction of e-governance on service delivery within their departments. The following subthemes relay their thoughts on the different ways, positive or negative, that they felt e-governance impacted service provision.

4.8.1.1 Increased Efficiency: Nearly all of the participants felt that e-governance has significantly improved municipal operations, which were often riddled with too many administrative processes thus limiting the pace at which work could be done. They also highlighted that the use of e-governance services reduces the amount of paperwork needed, which contributes to environmental sustainability. Moreover, e-governance services allowed the municipality to get constant and timely feedback from citizens, which some participants felt was essential to improve decision-making within their departments.

“E-governance services significantly reduced the paperwork we needed to use” (P1).

“In pursuit of an effective and efficient delivery of services, the Municipal Revenue Correspondence Department has adopted e-Correspondence communication portal where its customers are able to log their bill related queries through the online portal. The initiative has proven itself to be most effective since its introduction.” (P2)

“E-governance helps in reducing excessive red tapes’, further reducing the delay in the delivery of services. Moreover, with continuous feedback that is possible because of e-governance tools, the decision-making can be improved and made better. (P3)

However, one participant (P10) felt the e-government service efficiency was low in general, noting that only citizens in Durban Central experienced improved service delivery.

“In my opinion, the impact of e-governance on service delivery in the eThekweni Municipality is quite poor. The reason why is because sometimes we don’t get things on time due to our background. If we live too far from the town, we may not receive the same quality of service as those who live closer. We are dissatisfied with the online service network due to the inadequate systems the municipality has implemented to assist our community.”

It is quite evident from the municipal workers that they see the implementation of e-governance as positive, perhaps due to the fact that it makes their work easier. However, whether that translates to improve citizen service experiences for the masses, is still a point of contention and exploration.

4.8.1.2 Cost Reduction: The prevailing view among the study participants is that the shift to digital systems, including online portals and mobile apps, has led to reduced administrative costs, decreasing the need for face-to-face interaction and physical documentation, which is an ideal situation for municipal workers.

“With provision of goods and services possible through one touch, the cost of the government has been reduced.” (P3)

“With e-governance, there’s a noticeable reduction in the need for paperwork, which has cut down on both time and material expenses.” (P5)

However, one participant felt that using e-governance is costly because internet services are not freely accessible in many areas, hence he and his colleagues have to pay to use internet cafes at times.

“In our community, me and my staff we didn’t appreciate e-governance initiative because if we don’t have smart phone to do things on time, it must that we need to go to internet café and nowadays nothing free, so we need to have money.” (P8)

4.8.1.3 Transparency and Accountability: The general opinion amongst participants was that the digital framework of e-governance allows for better tracking of service requests and feedback, which supports greater accountability and transparency in operations. The following accepts captures this general sentiment:

"E-governance has allowed citizens to provide feedback on services and increased transparency in municipal operations." (P8)

"The digital platforms have made it easier to track and address complaints, ensuring accountability on both ends." (P6)

4.8.2 Challenges in Implementation

As anticipated, implementing e-governance in the eThekweni Municipality has not been without its challenges. Departments faced a range of obstacles, from limited infrastructure to resistance to change among both staff and citizens. The noted challenges are relayed in this section.

4.8.2.1 Digital Divide: Predictably, one of the key challenges that was noted with the implementation of e-governance services was the digital divide, which is a feature throughout the nation, even more urban settings. This gap in access to technology and digital literacy among citizens is seen as a significant hurdle. Limited internet access, especially in underserved areas, and lack of digital skills are noted as persistent issues that affect the adoption of e-governance.

"We face a digital divide, especially in areas lacking internet facilities or where people don't have smart devices." (P5)

"In our community, many can't afford smartphones, so accessing online services is still difficult." (P9)

4.8.2.2 Technical and Financial Constraints: Another challenge that was noted was that departments face issues such as resource limitations, technical glitches, and the high cost of outreach and educational initiatives, especially for lower income communities.

"Limited resources are a big issue. We need more funds to expand the infrastructure and support services in underserved areas." (P7)

"Network for online services is unsatisfactory; poor systems sometimes slow down service for remote users." (P9)

4.8.2.3 Resistance to Change: Some participants reported that staff and citizens were hesitant to transition from traditional face-to-face services to digital methods, necessitating extensive change management and training programmes to build awareness and ease the transition.

"There was resistance, especially from older staff, who were used to traditional methods. Change management was essential." (P6)

"Our community, especially the older generation, has been slow to adapt to e-governance." (P9)

Despite these efforts, significant challenges continue, particularly in establishing demographic equality and improving digital service reliability. Addressing these problems requires ongoing resource allocation, technology updates, and focused outreach to bridge gaps and maintain the long-term viability of e-governance efforts.

4.8.3 Inclusivity and Accessibility

For e-governance services to be effective in improving delivery service, it must be accessible to the masses, which means internet connectivity should be ubiquitous. The following section relays participants' views on the inclusivity and accessibility of e-government services to the communities.

4.8.3.1 Public Engagement and Digital Literacy: The responses from the interviews revealed that the municipality has conducted workshops, road shows, and public consultations to educate citizens on using digital services and to gather feedback for further improvements. To promote inclusivity, measures were put in place for the elderly and digitally illiterate citizens.

"Workshops and community engagement sessions have been crucial in raising awareness and teaching people how to use the online services." (P5)

"We run community outreach programmes and mobile services to reach people without internet access." (P6)

4.8.3.2 Community Infrastructure: Participants mentioned that there is a drive to increase access points to digital services, such as public kiosks, libraries, and community centers, offer free or subsidised internet and support to ensure that digital services are available to a broader audience.

"Access points in libraries and community centers allow people who lack internet at home to still benefit from e-governance services." (P8)

"Internet cafes and self-service kiosks provide essential access, though for some, getting to these places can be a challenge." (P9)

4.8.4 Data Privacy and Security

Ensuring data privacy and security is a core requirement for maintaining citizen trust. This section presents participants' views of data privacy and security.

4.8.4.1 Adherence to Privacy Laws: Departments have implemented strict protocols to safeguard personal information, with an emphasis on adhering to data protection regulations like the Protection of Personal Information Act (POPIA). Participants indicated that these measures include "stringent encryption protocols, regular audits, and secure login requirements" to prevent unauthorised access and data breaches. One participant highlighted the importance of these protocols, stating, "Data protection is essential for citizen trust, and we have to ensure that data security remains a priority as we move services online". The following excerpts provide other quotes.

"We ensure compliance with the Protection of Personal Information Act (POPIA) to safeguard citizen data." (P7)

"Citizen Data is stored securely and handled under strict data protection regulations to prevent breaches." (P5)

4.8.4.2 User Confidence and Security Protocols: Enhanced security protocols, including login credentials for accessing online portals, aim to build trust among citizens by protecting their data against cyber threats.

"Stringent encryption and secure login protocols are in place to build citizen trust and protect sensitive information." (P9)

"Firewalls, password protections, and two-factor authentication are standard in ensuring data security." (P8)

4.8.5 Adaptation and Training for Staff

Staff training is a key factor in ensuring the smooth transition from physical systems to digital systems. Moreover, if citizens have a bad experience with new systems, they are unlikely to adopt it. Hence change management is key for both staff and communities.

4.8.5.1 Change Management: Departments have implemented change management programmes, including workshops and awareness campaigns, to support staff in adapting to new e-governance tools. Through workshops and regular feedback sessions, departments aimed to build a “culture of acceptance and adaptability” around new technologies. These sessions not only enhanced employees’ technical abilities but also addressed concerns related to the transition, with one participant mentioning that “change management has been key in fostering a positive mindset towards e-governance” (P8). Participant eight also commented that

"We conducted workshops to address concerns and encourage acceptance of the new e-governance systems."

4.7.8.2 Continuous Learning: Ongoing training, digital literacy initiatives, and the establishment of “superuser” models in some departments have facilitated a smoother transition, especially for employees unfamiliar with digital tools.

"Our department created 'superusers' who are well-versed in technology and can guide others, fostering a supportive environment for learning." (P5)

"We continually update our digital literacy programmes to keep staff equipped with necessary skills as technology evolves." (P7)

4.8.6 Evaluation and Future Improvements

Evaluation of e-governance initiatives in eThekweni Municipality is crucial for understanding their effectiveness and planning future enhancements. Departments employ a variety of metrics to assess the success of these digital services, including user satisfaction surveys, service delivery times, and reductions in in-person visits.

4.8.6.1 Metrics for Success: Success is measured through customer feedback, reduction in physical visits, and improved resolution times for complaints. Regular evaluations and feedback loops have helped refine digital platforms.

"Success is measured through service delivery times, user satisfaction surveys, and reduced in-person visits." (P6)

"Increased numbers of online users and reduced complaints indicate the effectiveness of e-governance." (P9)

4.8.6.2 Sustainability and Scalability Plans: Departments are conducting research to improve e-governance scalability, with a focus on sustainable infrastructure and expanded digital access to accommodate growth and future technological advancements.

"Future plans involve expanding access points and scaling up infrastructure to keep up with demand." (P7)

"Investing in advanced technology will help ensure that e-governance initiatives remain scalable and sustainable." (P8)

4.9 INTEGRATION OF FINDINGS

The integration of thematic and quantitative findings underscores that e-governance has markedly enhanced service delivery in eThekweni Municipality by optimising processes, diminishing costs, and augmenting transparency. The majority of participants concurred that e-governance facilitated easier, quicker, and more economical access to municipal services. Efforts to promote inclusivity, like the establishment of public internet access points and digital literacy courses, were essential; but, obstacles persist, particularly for individuals with restricted digital access or education. Staff acclimatization to new systems was enhanced through training and peer support, revealing moderate associations between experience levels and the frequency of e-governance utilization.

Notwithstanding these gains, significant obstacles remain. Technical issues, restricted internet connection, and insufficient awareness of e-governance services were recognised as major impediments. Statistical analyses verified that these problems disproportionately impact specific demographics, especially individuals with lower educational levels. Data privacy continues to be a primary concern, with compliance with privacy regulations and secure authentication protocols fostering public confidence. Although e-governance has improved service efficiency and accessibility,

continuous investments in infrastructure, digital literacy, and focused assistance for marginalised populations are essential to fully realise its advantages for all demographics.

4.10 CONCLUSION

Chapter Four presented the outcomes and analysis of the findings of the study so that the objectives of the study are adequately addressed. The findings reveal that both staff and citizens are relatively open to e-government services; however, there are numerous hurdles that need to be overcome to improve the 'buy-in' by both staff and citizens. The following chapter will discuss the research findings in light of existing literature.

CHAPTER 5: DISCUSSION

5.1 INTRODUCTION

From the results section, it became apparent that e-governance stakeholders in the eThekweni municipality are generally aware and open to the idea of utilising e-governance services, and all have used them to a certain degree. However, there are a number of obstacles that have to be overcome to increase the adoption and frequency of use among stakeholders in the eThekweni Metropolitan Municipality. This chapter discusses these findings in light of current literature, examining congruencies and discrepancies between the study's findings and established research.

5.2 E-GOVERNANCE ADOPTION IN ETHEKWINI MUNICIPALITY

The study results reveal that the populace of the eThekweni Metropolitan Municipality has adopted ICT at a comparatively high rate, marking a major advancement in the digital transformation of public service delivery. The use of ICT by the municipality is consistent with the global trend towards digital governance, in which many local governments use technology to improve citizen involvement and expedite services (Jessup *et al.* 2019; Rusu *et al.* 2023). Most respondents used e-services on a weekly basis, which suggests that most citizens find the e-governance services simple to use and useful. This finding is in line with global trends, which show that the presence of awareness campaigns and easily available digital platforms frequently results in significant involvement for effective e-governance programmes (Hartanti, Abawajy and Chowdhury 2022).

However, while ICT adoption is progressing, there are gaps in digital inclusion across all areas in the municipality. These gaps manifest in limited internet access, particularly among certain demographic groups, and restricted digital literacy, both of which are barriers to e-governance engagement (Lyles, Schillinger and Albright 2021). Studies on digital equity commonly report this uneven access to the municipality's ICT framework across socio-economic classes as a significant challenge in digital service delivery, particularly in low- and middle-income nations (Willems *et al.* 2019). For broader efficacy, e-governance systems require supportive infrastructure and inclusive access measures, such as expanded digital literacy programmes and subsidised internet access for underserved areas (Flanagan 2022; Hofisi and Chigova 2023).

5.3 EFFICIENCY AND EFFECTIVENESS OF E-GOVERNANCE INITIATIVES

Survey respondents largely agreed that e-governance has improved efficiency in service delivery. The findings indicate that 86.1% of respondents feel confident and have experienced using e-governance, while over 70% believe that the municipality's online services have reduced the time and costs associated with service access. This efficiency is attributed to reduced administrative demands, fewer face-to-face interactions, and the ease of accessing services online. These results resonate with literature asserting that e-governance can streamline government functions, as seen in global e-governance models like Estonia's X-Road and Singapore's single digital identity system, which have set benchmarks for improving service accessibility (Olsen 2021; Nguyen 2020).

However, the effectiveness of these services is not uniformly perceived across all demographic segments. While residents and government employees who live and work near Durban report improvements in service delivery, those in remote or less digitally equipped areas experience delays and limitations due to poor internet connectivity. This discrepancy reflects a "dual digital divide" within the municipality, highlighting the importance of localised strategies to improve digital access across all regions. The dual digital divide is not surprising as scholars such as Sarker, Xiao and Beaulieu (2019) have previously noted that people in rural areas and with low incomes do not always have the tools and internet connection they need to use e-governance services, creating digital inequity and resistance to digital transformation.

The study's findings imply that e-governance in eThekweni has in fact increased the effectiveness and accessibility of service delivery. With more than 77.9% reporting favorable experiences, respondents generally believed that digital services made it easier to receive municipal services. The efficiency advantages seen in international e-governance programmes are mirrored in the claimed improvements, which include improved transparency, quicker turnaround times, and lower service access prices (Olsen 2021; Scholl 2020). For instance, the experiences of residents in Estonia and South Korea, where e-governance systems have made it easier for people to obtain services and interact with the public, show comparable results (OECD 2020).

A significant observation is the decrease in perceived time and cost for citizens. This is consistent with research indicating that digital services can markedly decrease

bureaucratic delays through process automation and the minimization of human error (Pareek and Sole 2022; Beriša and Šuleić 2023). Challenges persist in achieving broad access to the system for all citizens, as the digital transformation of public services requires the resolution of both technological and non-technological barriers (Kuhlmann and Heuberger 2021).

5.4 CHALLENGES IN E-GOVERNANCE IMPLEMENTATION

The following section highlights the challenges faced by the eThekwini Municipality with the implementation of e-governance.

5.4.1 Digital Divide and Infrastructure Limitations

Multiple challenges affect the widespread adoption and utilisation of e-governance in eThekwini. Primarily, limited digital access, especially regarding internet availability and affordability, presents a significant barrier to effective engagement in e-governance for numerous residents. This issue aligns with findings from other studies indicating that access to affordable and reliable internet is a significant barrier to digital equity, especially in developing nations (Willems *et al.* 2019; Shaw 2023). The study revealed that 63% of respondents identified a deficiency in user-friendly interfaces within existing e-governance platforms, citing difficulties in system navigation. This highlights the importance of user-centred design, as usability significantly affects engagement and satisfaction in digital platforms (Saltaji 2019).

A further barrier identified was insufficient municipal support regarding guidance on the use of e-governance. The results indicated that over 50% of respondents regarded support as inadequate, a challenge that affects the efficacy of service delivery and public trust (Mueller 2017). Addressing these concerns is consistent with established practices in e-governance, where proactive customer support and training are essential for promoting digital literacy and enhancing citizen engagement in digital services (Chen 2021).

5.4.2 Organisational Resistance and Skills Gaps

This study identified resistance to change and insufficient digital literacy as obstacles within the municipality's workforce. Certain municipal employees, especially those familiar with conventional paper-based systems, exhibit resistance to adopting digital platforms. This organisational resistance aligns with literature findings that identify skills gaps and fear of job displacement as prevalent challenges in digital

transformation initiatives (Napitupulu *et al.* 2018). South Africa faces a documented challenge regarding digital literacy among government employees, highlighting the need for continuous training and capacity-building initiatives (Muridzi 2019).

The need for digital training among municipal staff is evident, given the rapid advancements in e-governance technologies. Capacity-building programmes, as implemented in Singapore and Estonia (Nguyen 2020; Olsen 2021), can provide models for the eThekweni Municipality to develop a skilled and adaptable workforce. Such initiatives can help reduce resistance to change, fostering a culture that embraces digital service delivery.

5.5 PUBLIC PERCEPTION AND EXPERIENCE

The public's awareness and favourable perceptions of e-governance services in eThekweni suggests a positive trend in digital engagement. All respondents demonstrated awareness of the e-governance services offered, with most utilising them on a weekly basis. This level of engagement indicates the effectiveness of awareness initiatives; however, additional improvements may enhance regular usage. The findings indicate that a majority of respondents view e-governance services as effective in improving transparency, which is a crucial indicator of trust in government services (Twizeyimana and Andersson 2019).

The favourable public perception contrasts with reported usability challenges, indicating that while citizens appreciate the concept of e-governance, there is potential for enhancement in service delivery and user interface design. Consistent with findings in other contexts, especially in emerging economies, the equilibrium between technology availability and user-friendliness is crucial for attaining greater public satisfaction (Androutsopoulou *et al.* 2019). Addressing user-centric design and service accessibility may enhance public trust and strengthen the municipality's e-governance engagement (Krol and Zdonek 2021).

5.6 COMPARISON WITH THEORETICAL FRAMEWORK

The findings from the investigation into the efficiency and effectiveness of e-governance services in the eThekweni Municipality are examined through the lens of the TAM and PVT. Presented here is an in-depth assessment that integrates both theories to better understand the results obtained.

5.6.1 Technology Acceptance Model (TAM)

The TAM posits that the acceptance of technology is driven by two key factors: Perceived Ease of Use (PEOU) and Perceived Usefulness (PU), which directly influences user attitudes and behavioral intentions.

5.6.1.1 Perceived Ease of Use: The results indicate that 77.9% of respondents agree that e-governance services have made accessing municipal services easier, while 72.2% agree that they have reduced the time required for service delivery. These findings align with the PEOU component of TAM, as users find e-governance systems straightforward to navigate, contributing to higher acceptance rates. For example:

- **Ease of use** is reflected in the reduction of paperwork, and is highlighted in the qualitative findings (e.g., "e-governance significantly reduced paperwork").
- Despite technical challenges, the low mean (1.77) for technical difficulties (Table 4.9) suggests that most users find the platforms manageable

5.6.1.2 Perceived Usefulness: The PU dimension is evident in the high percentages of respondents acknowledging improvements in service delivery efficiency (67.1%), cost reduction (75.1%), and increased transparency (64%). These factors enhance the perceived utility of e-governance systems:

- Enhanced efficiency and transparency support users' belief that e-governance systems provide tangible benefits, which is a critical determinant of adoption.
- Cost reductions and quicker access times highlight the system's value in simplifying citizens' interactions with the municipality.

5.6.1.3 Behavioral Intention and Usage: Behavioural intention is observable in usage patterns, with 55.8% of respondents using services weekly, while only 11.6% rarely use them. The awareness rate of 100% (Table 4.7) further supports TAM, as awareness often correlates with increased adoption.

5.6.1.4 Barriers to Adoption: The TAM also considers external variables influencing PEOU and PU. The results underscore barriers such as:

- Digital divide and lack of internet access, with 86.6% agreeing this is a significant issue

- Resistance to change, as indicated by qualitative insights, where older citizens and some staff struggled with digital transitions.

5.6.2. Public Value Theory (PVT)

PVT emphasises creating value for the public by improving outcomes such as efficiency, equity, accountability, and citizen engagement.

5.6.2.1 Efficiency and Effectiveness: The study demonstrates how e-governance optimises service delivery:

- Quantitative data shows improvements in efficiency and cost reduction (e.g., significant mean values for efficiency and cost metrics).
- Qualitative feedback highlights reduced red tape and improved responsiveness to citizen concerns, fulfilling PVT's focus on public value creation through better services.

5.6.2.2 Equity and Accessibility: Equity challenges are apparent in the digital divide. Despite outreach efforts (e.g., community workshops), digital literacy and lack of devices remain significant barriers:

- Respondents in remote areas reported difficulties, as captured in the thematic analysis (e.g., "smartphone access is not universal").
- These barriers necessitate targeted interventions to ensure inclusivity and equitable access, aligning with PVT's commitment to serving all demographics.

5.6.2.3 Transparency and Accountability: Transparency emerged as a key outcome of e-governance:

- Respondents appreciated tracking service requests and feedback, with 36% strongly agreeing that e-governance increased transparency.
- Adherence to data protection laws like POPIA, as emphasised in the qualitative findings, reinforces accountability and builds citizen trust.

5.6.2.4 Citizen Engagement: Public engagement initiatives, including workshops and mobile services, indicate a deliberate effort to bridge the accessibility gap. These efforts align with PVT's principles of fostering participatory governance.

5.6.3 Integration of TAM and PVT

The integration of TAM and PVT provides a broad view of the e-governance initiative:

- TAM explains individual-level adoption behaviors based on perceptions of ease and utility.
- PVT highlights broader societal impacts, emphasising value creation, equity, and trust.

Using TAM and PVT theory to interpret the results, it becomes evident that while e-governance in eThekweni Municipality has significantly improved efficiency and transparency, barriers like the digital divide and resistance to changing need addressing. By enhancing accessibility and trust, the municipality can further leverage e-governance to deliver public value and achieve widespread acceptance.

5.7 CONCLUSION

This chapter discussed the findings of the study regarding e-governance adoption, efficiency, and challenges in the eThekweni Municipality. The municipality has advanced in ICT adoption; however, challenges like the digital divide and organisational resistance remain, hindering the complete realisation of e-governance. The following chapter presents the conclusion and recommendations of the study considering the results obtained.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 SUMMARY OF FINDINGS

This study explored the adoption, efficiency, and effectiveness of e-governance in the eThekweni Municipality, emphasising the impact of information and communication technologies (ICT) on service delivery. Notable findings indicate that although e-governance initiatives have enhanced service efficiency and accessibility for numerous residents, considerable challenges persist. Challenges encompass restricted digital access stemming from infrastructural and socio-economic inequalities, resistance within organisations, and differing degrees of digital literacy among municipal staff and community members.

The findings indicated a favourable reaction to the adoption of e-governance among users who have consistent internet access, with more than 70% of the respondents' recognising improvements in service efficiency and cost-effectiveness. Nevertheless, individuals in less accessible or economically disadvantaged regions indicated a lack of benefits, underscoring the necessity for focused infrastructural investment to bridge the digital divide. Additional obstacles to achieving full integration of e-governance services were identified, including organisational barriers like limited digital literacy and resistance to change within municipal departments.

6.2 CONTRIBUTION TO KNOWLEDGE

This study adds to the expanding literature on e-governance in low- and middle-income nations and the local government level. Moreover, the study addresses a gap in understanding the practical outcomes of digital transformation efforts in South African municipalities by evaluating the e-governance adoption within the eThekweni Municipality. This study provides valuable insights into the potential of ICT to improve service delivery while also highlighting the obstacles that local governments might encounter, such as challenges in digital literacy, gaps in infrastructure, and resistance within organisations.

This study's findings add to the scholarly discussion on digital inclusion, highlighting how socio-economic disparities impact digital adoption and service access. It emphasises that for e-governance to be truly effective, initiatives must address infrastructure and access issues to ensure equity across all population segments.

This study makes several important contributions to the field of e-governance, particularly within the context of public administration in South Africa. By examining the adoption, effectiveness, and challenges of e-governance in the eThekweni Municipality, this research adds to the understanding of how digital governance can be optimised to improve public service delivery, transparency, and efficiency in local government.

6.2.1 Theoretical Contributions

The findings enhance current theoretical frameworks in digital transformation and digital equity, demonstrating that although ICT can greatly enhance public service access and efficiency, equitable access is essential for the success of e-governance. This study enhances digital equity theory by demonstrating how disparities in internet access, usability, and support resources can restrict the effectiveness and influence of e-governance. These insights emphasise the importance of prioritising inclusivity and accessibility in digital transformation within governance to enhance public engagement and trust. The investigation highlights the significance of user-centred design in e-governance platforms, reinforcing theories that prioritise ease of use as a crucial element in citizen engagement and satisfaction.

6.2.2 Methodological Contributions

This study employs a mixed-methods approach to evaluating e-governance at the municipal level, integrating quantitative data from surveys with qualitative insights to provide an in-depth knowledge of the public's experiences and perceptions. This methodological approach facilitates more comprehensive insight of the scope and constraints of e-governance implementation in eThekweni, highlighting the importance of integrating both quantitative and qualitative data in the study of public administration. The combination of descriptive and inferential statistical analyses, along with reliability testing, underscores the potential for a more systematic evaluation of e-governance initiatives, providing a framework for future research on digital public service delivery.

6.2.3 Practical Contributions

In practical terms, the study provides actionable recommendations for policymakers and municipal administrators aiming to improve e-governance. These include promoting digital literacy programmes, expanding internet access, simplifying the user

interface, and strengthening customer support channels. Such recommendations are directly applicable to the eThekwini Municipality and can serve as guidelines for other municipalities facing similar challenges in e-governance implementation. By identifying key barriers and areas for improvement, this study equips policymakers with insights that can help make e-governance more inclusive and effective for a diverse citizenry.

In summary, this research contributes new knowledge to the discourse on e-governance, bridging the gap between theory and practice in digital public service delivery, and offering a pathway toward more accessible, efficient, and citizen-centered governance.

6.3 RECOMMENDATIONS

This section presents the recommendations for the study.

6.3.1 Recommendations for Municipal Management

- **Enhance Digital Infrastructure:** The eThekwini Municipality should prioritise investments in ICT infrastructure, particularly in underserved areas, to improve access to e-governance services. Partnerships with internet service providers and funding incentives could help expand internet reach, ensuring that all citizens can access online services regardless of their location.
- **Localised E-governance Solutions:** Municipal management should consider tailoring e-governance services to the specific needs of diverse communities within eThekwini. For example, low-cost or mobile-access solutions could be developed for citizens in rural or lower-income areas to increase their access to municipal services.
- **Training and Capacity-Building for Staff:** Training programmes focused on digital literacy and ICT skills should be implemented for municipal employees to reduce resistance and improve service delivery quality. Change management strategies can also help ease the transition from traditional service models to digital platforms.

6.3.2 Recommendations for Policymakers

- **Digital Inclusion Policies:** Policymakers should adopt digital inclusion policies that address affordability and accessibility issues. Subsidised internet access

or public Wi-Fi initiatives can make e-governance services more accessible to low-income residents.

- **Public-Private Partnerships (PPPs):** The municipality could benefit from partnerships with the private sector to accelerate ICT infrastructure development, especially in underserved areas. By engaging private stakeholders, the municipality can leverage expertise, resources, and technology to enhance service delivery and ensure digital inclusion.
- **Community Awareness Campaigns:** Initiatives to increase awareness about e-governance services should be a priority, particularly in communities with lower digital literacy levels. Educational campaigns can promote the benefits of digital access, increasing resident engagement and participation in e-governance programmes.

6.3.3 Recommendations for Future Research

- **Comparative Analysis of E-governance in Other Municipalities:** Future studies could examine e-governance in other South African municipalities to provide broader insights on challenges and opportunities of implementing e-governance at the local government level.
- **Digital Literacy and User Experience Studies:** Research on digital literacy levels among residents and municipal staff can provide deeper insights into the extent to which it affects the adoption and user experience with e-governance services. Understanding these experiences can help inform tailored interventions and training programmes.
- **Evaluating Long-term Impacts of E-governance Adoption:** Longitudinal studies assessing the long-term impact of e-governance on service delivery efficiency, citizen satisfaction, and municipal costs could provide valuable data for policymakers and municipal managers.

6.4 LIMITATIONS OF THE STUDY

This study faced specific limitations that could influence the broader applicability of its findings. The scope of data collection was confined to the eThekweni Municipality, which may lead to findings that are not indicative of other South African municipalities or rural areas facing distinct infrastructure challenges. Furthermore, the investigation

concentrated on survey responses, which could be influenced by response biases. Future investigations could build upon this study by incorporating various municipalities for comparative analysis.

6.5 CONCLUSION

This study has highlighted both the achievements and challenges associated with e-governance in the eThekweni Municipality. The municipality's adoption of ICT in service delivery has yielded improvements in efficiency and accessibility for digitally connected residents, demonstrating the potential of e-governance to enhance public services. However, barriers such as digital infrastructure gaps, organisational resistance, and socio-economic disparities limit the full realization of these benefits.

To address these challenges, the eThekweni Municipality must adopt an inclusive and strategic approach to e-governance that considers the needs of all citizens. With targeted policies, improved infrastructure, and enhanced digital literacy programmes, e-governance can play a vital role in building a more responsive, transparent, and equitable service delivery system for the municipality's diverse population. Through these efforts, the municipality can continue progressing toward a future where digital tools and technology empower all residents, improving their quality of life and fostering a more inclusive and efficient public service environment.

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APPENDICES

APPENDIX A: Survey Questionnaire

Purpose:

This questionnaire is designed to gather information on the perceptions, experiences, and challenges related to fiscal management within the eThekweni Municipality. The data collected will help identify key issues that contribute to fiscal mismanagement and will be used to inform recommendations for improving financial governance in the municipality. Your responses will provide valuable insights that can help in addressing these challenges effectively.

Instructions to Respondents:

Thank you for participating in this study. This questionnaire aims to understand your views and experiences related to fiscal management in the eThekweni Municipality. Your responses are confidential and will be used solely for research purposes to enhance the financial governance of the municipality. Please answer each question as accurately and honestly as possible. If you need clarification on any question, do not hesitate to ask. Kindly complete the questionnaire by marking your responses with an X or ✓. The questionnaire should take approximately 20 minutes to complete.

Respondent number: _____

Section 1: Biographical Information

1.1 Gender

- Male
- Female

1.2 Level of Government

- Local government
- Provincial government
- National government

1.3 Highest Level of Education

- No Formal Education
- Grade 12
- National Certificate
- National Diploma
- Postgraduate Degree
- Other/Cannot Disclose

1.4 Age Category

- 18-30 years
- 31-40 years
- 41-50 years
- 51-60 years
- 61-70 years
- Cannot Disclose

1.5 How many times have you visited the municipality?

- 1st Visit
- Twice
- Thrice
- More than 5 Times
- Regular Visitor

Section 2: Awareness and Usage of E-Governance Services

2.1 Are you aware of the e-governance services provided by the eThekwini Municipality?

- Yes
- No

2.2 How often do you use e-governance services provided by the eThekwini Municipality?

- Daily

- Weekly
- Monthly
- Rarely
- Never

Section 3: Perceived Effectiveness of E-Governance Services

Please indicate your level of agreement with the following statements using the scale:
 1 = Strongly Disagree | 2 = Disagree | 3 = Neutral | 4 = Agree | 5 = Strongly Agree

Accessibility Subscale

1. The e-governance services provided by the municipality are easy to access and navigate.
 1 2 3 4 5
2. Using e-governance services has significantly decreased the waiting time to receive municipal services.
 1 2 3 4 5
3. The interface of the e-governance services is user-friendly and intuitive.
 1 2 3 4 5
4. E-governance services are readily available whenever I need to access municipal services.
 1 2 3 4 5
5. E-governance services are accessible to people with different levels of technological proficiency.
 1 2 3 4 5

Efficiency Subscale

1. The e-governance services have made municipal processes more efficient, reducing the time and effort needed to complete tasks.
 1 2 3 4 5
2. Overall, my experience with the e-governance services has been positive and satisfactory.
 1 2 3 4 5

3. E-governance services have streamlined municipal processes, reducing bureaucratic hurdles.
 1 2 3 4 5
4. Transactions through e-governance services are completed quickly and efficiently.
 1 2 3 4 5
5. The use of e-governance services has reduced errors in municipal transactions and processes.
 1 2 3 4 5

Transparency Subscale

1. The e-governance services provide clear and transparent information about municipal operations and decisions.
 1 2 3 4 5
2. The information provided through e-governance services is easily accessible and understandable.
 1 2 3 4 5
3. E-governance services clearly communicate the rationale behind municipal decisions.
 1 2 3 4 5
4. E-governance services have improved the accountability of municipal operations by providing detailed records and reports.
 1 2 3 4 5

Section 4: Challenges in Using E-Governance Services

Please indicate your level of agreement with the following statements using the scale:
 1 = Strongly Disagree | 2 = Disagree | 3 = Neutral | 4 = Agree | 5 = Strongly Agree

1. I face technical difficulties when using e-governance services.
 1 2 3 4 5
2. Lack of internet access is a barrier to using e-governance services.
 1 2 3 4 5
3. There is a lack of awareness about the availability of e-governance services.
 1 2 3 4 5
4. The e-governance services are not user-friendly.
 1 2 3 4 5

5. There is inadequate support from the municipality for using e-governance services.
 1 2 3 4 5
-

Section 5: Recommendations

5.1 What improvements would you suggest for the e-governance services provided by the eThekweni Municipality?

(Open-ended)

5.2 Any additional comments or suggestions?

(Open-ended)

APPENDIX B: INTERVIEW GUIDE

E-governance interview guide for government officials in eThekwini, South Africa:

Introduction

- **Purpose of the Interview:**
 - "Thank you for agreeing to participate in this interview. The purpose of this discussion is to gather insights into the implementation and impact of e-governance services at eThekwini Municipality. Your feedback will help us understand the challenges and successes of these initiatives and how they can be improved."
- **Confidentiality Assurance:**
 - "Your responses will be kept confidential, and the information you provide will be used solely for research purposes. You are free to skip any questions you're not comfortable answering, and you may stop the interview at any time."
- **Consent:**
 - "Do you have any questions before we begin? May I proceed with recording the interview?"

-
1. How has e-governance impacted your department's service delivery in eThekwini?
 2. How have you and your staff adapted to the introduction of e-governance initiatives?
 3. How do you ensure that e-governance initiatives are inclusive and accessible to all citizens, including those who may not have access to the internet or digital devices?
 4. How do you ensure the privacy and security of citizen data in e-governance initiatives?
 5. How do you measure the success of e-governance initiatives in your department?
 6. What are the main challenges you have encountered in implementing e-governance initiatives?

7. How do you ensure citizen engagement in the design and implementation of e-governance initiatives in your department?
8. How do you provide training and support to citizens to use online government services?
9. How do you collaborate with other government departments and stakeholders to ensure the effective implementation of e-governance initiatives?
10. What are your future plans for e-governance initiatives in your department, and how do you plan to ensure their sustainability and scalability?

APPENDIX C1: INFORMATION LETTER (Questionnaires)



Title of the Research Study: The use of e-governance in public service delivery in the eThekwini Municipality, KwaZulu-Natal

Principal Investigator/s/researcher: Bongekile Gloria Ngcobo

Co-Investigator/s/supervisor/s: Prof Zamokuhle Mbandlwa (PhD Public Management)

Brief Introduction and Purpose of the Study:

I am presently conducting a research study that's intended to investigate the role being played by E-governance on service delivery in the eThekwini municipality of KZN. At the same time this study will discuss the challenges faced by the eThekwini municipality in providing effective service delivery in the eThekwini municipality through e-government Aim is to investigate the role of E-governance for effective service delivery in the eThekwini municipality of KZN.

Good day. I hope this letter finds you well.

My name is Bongekile Gloria Ngcobo, I am a master's student at the Durban University of Technology doing research for my master's in management sciences specialising in Public Administration.

Invitation to the potential participant

I would like to invite you to participate in the research.

Outline of the Procedures: This research proposal follows the university requirements, and I want to

Ensure you that your identity will be treated with absolute confidentiality. The aim of the study is to investigate the empowerment of women through entrepreneurship at eThekweni Municipality, KwaZulu-Natal province

Risks or Discomforts to the Participant: There is no risk or discomfort for participating during the study

Explain to the participant the reasons he/she may withdraw from the Study:

That the research may be terminated early in particular circumstances viz. Non-compliance, illness, adverse reactions, etc. State that the participant is entitled to withdraw from the study at any time should they wish to do so and will still continue to receive the appropriate standard of care; Explain to the potential participant that the research may be terminated early in particular circumstances. That the researcher may, under certain circumstances, decide to withdraw the participant from the study; explain what procedures are in place for an orderly termination of participation by the participant.

Benefits: This study seeks to investigate the role being played by E-governance on service delivery in the eThekweni Municipality of Kwa-Zulu Natal.

Remuneration: There will be no remuneration for participation.

Costs of the Study: There will be no payment required from participants for the study.

Confidentiality: The study investigators, supervisor, co-supervisor and the institution (hereby 'referred to as "study personnel) are committed to respecting your privacy; no other persons will have access to your personal information or identifying information without your consent unless required by law. Any documentation or information related to you will be coded by study numbers to ensure that people outside of the study will not be able to identify you. All information that identifies you will be kept confidential, stored and locked in a

secure place that only the study personnel will have access to. In addition, electronic files will be stored on a secure institutional network and will be password protected. No identifying information about you will be allowed off-site in any form, to ensure confidentiality to the greatest extent possible.

Results: In most African countries, E-governance services have not been fully adopted because of poverty levels, poor education, and less coverage in ICT systems. This study will elicit debates on whether e-governance has had a beneficial or bad influence on the eThekweni municipality's service delivery system.

Research-related Injury: No injury associated with study.

Storage of all electronic and hard copies including tape recordings

The data will be retained on a safety-locked cabinet, and electronic copies will be stored on a password-protected computer for a period of five years. After five years, all hard copies will be shredded, and electronic copies will be permanently deleted.

Persons to contact in the event of any problems or queries: Prof. Zamokuhle Mbandlwa (PhD Public Management). Please contact the researcher (cell phone number: 0735177240, my supervisor (telephone number: 031373 6864.) or the DUT-Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Acting Director: Research and Postgraduate Support on researchdirector@dut.ac.za

APPENDIX C2: INFORMATION LETTER (Interviews)



Title of the Research Study: The use of e-governance in public service delivery in the eThekwini Municipality, KwaZulu-Natal

Principal Investigator/s/researcher: Bongekile Gloria Ngcobo

Co-Investigator/s/supervisor/s: Prof Zamokuhle Mbandlwa (PhD Public Management)

Brief Introduction and Purpose of the Study:

I am presently conducting a research study that's intended to investigate the role being played by E-governance on service delivery in the eThekwini municipality of KZN. At the same time this study will discuss the challenges faced by the eThekwini municipality in providing effective service delivery in the eThekwini municipality through e-government Aim is to investigate the role of E-governance for effective service delivery in the eThekwini municipality of KZN.

Good day. I hope this letter finds you well.

My name is Bongekile Gloria Ngcobo, I am a master's student at the Durban University of Technology doing research for my master's in management sciences specialising in Public Administration.

Invitation to the potential participant

I would like to invite you to participate in the research.

Outline of the Procedures: This research proposal follows the university requirements, and I want to

Ensure you that your identity will be treated with absolute confidentiality. The aim of the study is to investigate the empowerment of women through entrepreneurship at eThekweni Municipality, KwaZulu-Natal province

Risks or Discomforts to the Participant: There is no risk or discomfort for participation during the study

Explain to the participant the reasons he/she may withdraw from the Study:

That the research may be terminated early in particular circumstances viz. Non-compliance, illness, adverse reactions, etc. State that the participant is entitled to withdraw from the study at any time should they wish to do so and will still continue to receive the appropriate standard of care; Explain to the potential participant that the research may be terminated early in particular circumstances. That the researcher may, under certain circumstances, decide to withdraw the participant from the study; explain what procedures are in place for an orderly termination of participation by the participant.

Benefits: This study seeks to investigate the role being played by E-governance on service delivery in the eThekweni Municipality of Kwa-Zulu Natal.

Remuneration: There will be no remuneration for participation.

Costs of the Study: There will be no payment required from participants for the study.

Confidentiality: The study investigators, supervisor, co-supervisor and the institution (hereby 'referred to as "study personnel) are committed to respecting your privacy; no other persons will have access to your personal information or identifying information without your consent unless required by law. Any documentation or information related to you will be coded by study numbers to ensure that people outside of the study will not be able to identify you. All information that identifies you will be kept confidential, stored and locked in a secure place that only the study personnel will have access to. In addition electronic files will be stored on a secure institutional network and will be password protected

no identifying information about you will be allowed off alter in any form, ensuring confidentiality to the greatest extent possible.

Results: In most African countries E-governance services have not been fully adopted because of poverty levels, poor education and less coverage in ICT systems citizens. This study will elicit debates on whether e-governance has had a beneficial or bad influence on the eThekweni municipality's service delivery system.

Research-related Injury: No injury associated with study.

Storage of all electronic and hard copies including tape recordings

The data will be retained on a safety locked cabinet and electronic copies will be stored on a password protected computer for a period of five years. After five year all hard copies will be shredded, and electronic copies will be permanently deleted.

Persons to contact in the Event of Any Problems or Queries: Prof Zamokuhle Mbandlwa (PhD Public Management). Please contact the researcher (cell phone number: 0735177240, my supervisor (telephone number: 031373 6864.) or the DUT-Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Acting Director: Research and Postgraduate Support on researchdirector@dut.ac.za

APPENDIX D: CONSENT FORM



CONSENT

Full Title of the Study:

Names of Researcher/s:

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, _____ (name of researcher), about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: _____,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

_____	_____	_____	_____
Full Name of Participant Thumbprint	Date	Time	Signature / Right

I, _____ (name of researcher) herewith confirm that the above participant has been fully

informed about the nature, conduct and risks of the above study.

_____	_____	_____
Full Name of Researcher	Date	Signature
_____	_____	_____
Full Name of Witness (If applicable)	Date	Signature
_____	_____	_____
Full Name of Legal Guardian (If applicable)	Date	Signature

APPENDIX E: ETHICS TRAINING CERTIFICATE



Zertifikat Certificat Certificado Certificate

Promouvoir les plus hauts standards éthiques dans la protection des participants à la recherche biomédicale
Promoting the highest ethical standards in the protection of biomedical research participants

Certificat de formation - Training Certificate

Ce document atteste que - this document certifies that



Bongekile Ngcobo

a complété avec succès - has successfully completed

Introduction to Research Ethics

du programme de formation TRREE en évaluation éthique de la recherche
of the TRREE training programme in research ethics evaluation

Release Date: 2023/01/18

CID: P4Elnald

Professeur Dominique Sprumont
Coordinateur TRREE Coordinator



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Programmes de formation
postgraduado et continuo

APPENDIX F: ETHICAL CLEARANCE



Institutional Research Ethics Committee

Research and Postgraduate Support Directorate
2nd Floor, Berwyn Court
Gate I, Steve Biko Campus
Durban University of Technology

P O Box 1334, Durban, South Africa, 4001

Tel: 031 373 2375 Email:

lavishad@dut.ac.za

http://www.dut.ac.za/research/institutional_research_ethics

www.dut.ac.za

28 August 2024

Ms B G Ngcobo
477 Smith Street
City Life Building
Durban
4000

Dear Ms Ngcobo

The use of e-governance in public service delivery in the eThekweni Municipality, KwaZulu-Natal

Ethical Clearance number IREC 242/23

The DUT-Institutional Research Ethics Committee acknowledges receipt of your final data collection tool for review.

We are pleased to inform you that the data collection tool has been approved. Kindly ensure that participants used for the pilot study are not part of the main study.

In addition, the DUT-IREC acknowledges receipt of your gatekeeper permission letter.

Please note that **FULL APPROVAL** is granted to your research proposal. You may proceed with data collection.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the DUT-IREC according to the DUT-IREC Standard Operating Procedures (SOP's).

Please note that any deviations from the approved proposal require the approval of the DUT-IREC as outlined in the DUT-IREC SOP's.

It is compulsory for a student or researcher to apply for recertification on an annual basis. The failure to do so will result in withdrawal of ethics clearance. It is the responsibility of the researcher and the supervisor to apply for recertification.

Please note that you are required to submit a Notification of Completion of Study form together with an abstract to the DUT-IREC office on completion of your study.

Yours Sincerely

Prof J K Adam
Chairperson: DUT-IREC

APPENDIX G: GATEKEEPERS LETTER



For attention:
Chair of Research Ethics Committee
Durban University of Technology
Faculty of Management Science
Durban
4001

7 May 2024

RE: LETTER OF SUPPORT TO B.G NGCOBO STUDENT NO: 21234038 - GRANTING PERMISSION TO USE ETHEKWINI MUNICIPALITY AS A STUDY SITE

The eThekweni Information Management Unit and Municipal Institute of Learning (MILE) in eThekweni Municipality, have considered a request from Bongekile Gloria Ngcobo (Ms) to use eThekweni Municipality as a research study site for the purposes of undertaking a research study entitled: "An investigation of the use of E-governance in the public service delivery in the eThekweni Municipality of KwaZulu-Natal province, South Africa." - leading to the awarding of a Masters Degree.

We wish to inform you of the acceptance of her request and hereby assure her of our utmost cooperation towards achieving her academic goals; the outcome which we believe may help this municipality improve its evidence-base on e-governance. The student is reminded of the ethical considerations and health regulations when conducting this research. The student must take all necessary measures to ensure her personal safety during the research period as eThekweni Municipality indemnifies itself from any incidental claims that may arise. In return, we stipulate as mandatory that the student contacts sthabile.mbhongwa@durban.gov.za to present the preliminary results and recommendations of this study to the related unit/s.

Wishing the student all the best in her studies.

Signed by: Sibongilekazi Meyisa Dlamini
Signed at: 2024-05-30 10:28:47 +02:00
Reason Witnessing: Sibongilekazi Meyisa

.....
Mr. Robert Dlamini
Chief Information Officer: IMU
eThekweni Municipality

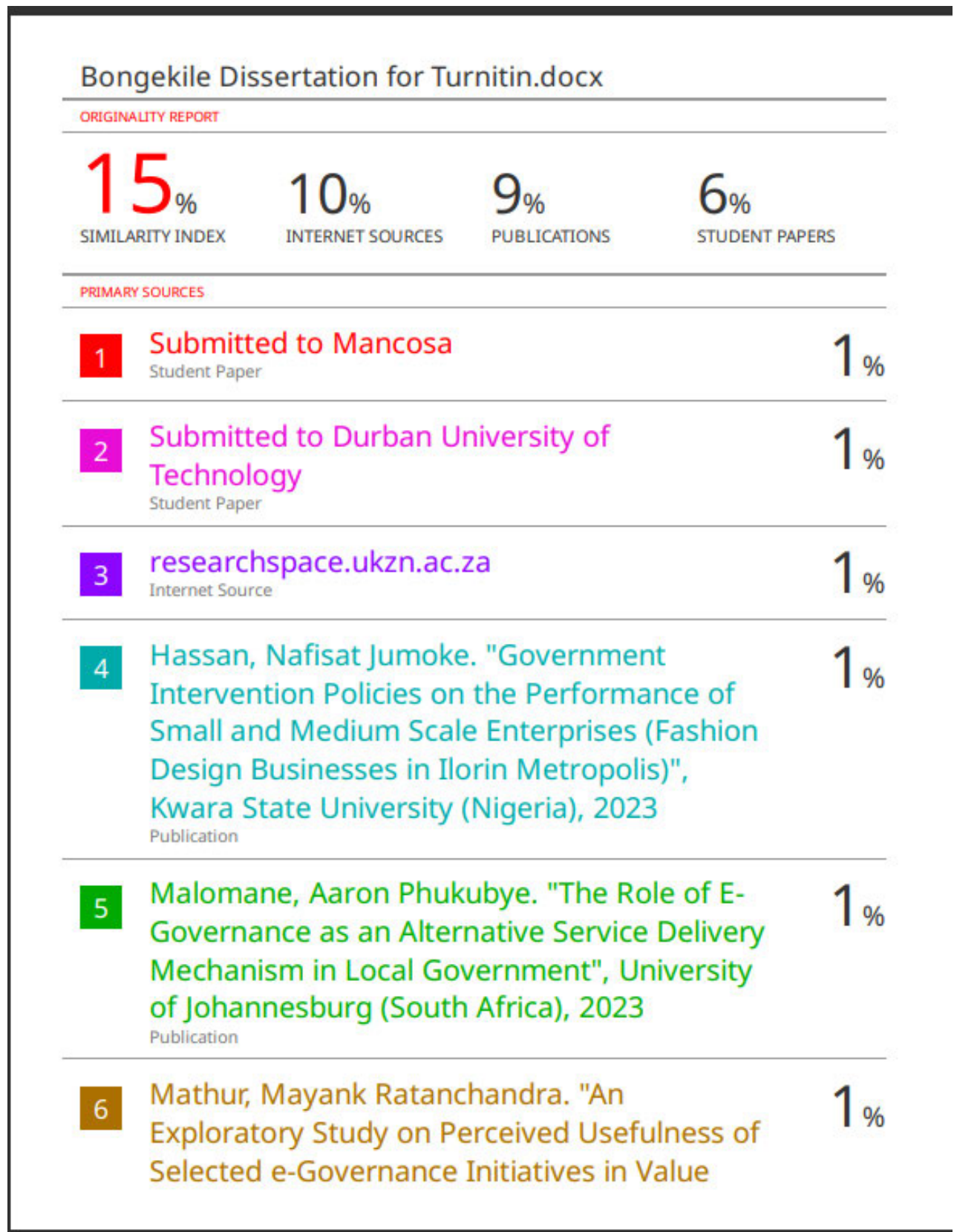
.....
Dr. Collin Pityay
Program Manager: MILE
eThekweni Municipality

.....
I, Bongekile Gloria Ngcobo hereby accept as mandatory that I will comply fully as per the conditions stipulated above.

Signed:

Date: 09 May 2024

APPENDIX H: TURNITIN REPORT



APPENDIX I: EDITORS LETTER

EDITOR'S LETTER

Researchers Beyond-Borders (PTY) LTD
Umhlanga, Durban
South Africa
22 January 2025

To whom it may concern

Editing of Masters Dissertation: Bongekile Gloria Ngcobo (Student number - 21231038)

Title of dissertation: The use of e-governance in public service delivery in the eThekweni Municipality, KwaZulu-Natal.

This letter serves as confirmation that the aforementioned dissertation has been language edited.
Any queries may be directed to the author of this letter.



Regards

Maleni Pillay
Researchers Beyond-Borders
consult@researchersbeyondborders.com
www.researchersbeyondborders.com
